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1887

THE CONNECTICUT ALMANAC 1887.

EDITED BY

PROFESSOR A. W. PHILLIPS, OF YALE COLLEGE.

THE CALCULATIONS ARE MADE IN

EASTERN STANDARD TIME,

And are for that section of the State (see map below) in which New Haven is located. For any other section of the State, to find when the sun, moon and planets rise, come to the meridian and set, apply to the calendar the correction indicated at the head of that section on this map. Thus, for the section in which Hartford is located, subtract one minute; for the New London section, subtract three minutes, etc.



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THE CONNECTICUT ALMANAC, 1887.

EDITED BY

Professor A. W. PHILLIPS, of Yale College.

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NEW HAVEN:

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CALENDAR.

1886.

	Sunday.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
JULY.	..	..	..	..	1	2	3
	4	5	6	7	8	9	10
	11	12	13	14	15	16	17
	18	19	20	21	22	23	24
	25	26	27	28	29	30	31
AUGUST.	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	31	..	..	..	..
SEPT.	..	..	..	1	2	3	4
	5	6	7	8	9	10	11
	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	30	..	..
OCT.	..	..	..	..	..	1	2
	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	29	30
	31	..	..	..	..	..	..
NOV.	..	1	2	3	4	5	6
	7	8	9	10	11	12	13
	14	15	16	17	18	19	20
	21	22	23	24	25	26	27
	28	29	30	..	..	..	..
DEC.	..	..	..	1	2	3	4
	5	6	7	8	9	10	11
	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	30	31	..
	..	..	..	..	..	..	..

1887.

	Sunday.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
JAN.	..	..	..	..	..	..	1
	2	3	4	5	6	7	8
	9	10	11	12	13	14	15
	16	17	18	19	20	21	22
	23	24	25	26	27	28	29
	30	31	..	..	..	..	..
FEB.	..	..	1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	..	..	..	..	..
MARCH.	..	..	1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30	31	..	..
APRIL.	..	..	..	..	..	1	2
	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	29	30
MAY.	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	31	..	..	..	..
JUNE.	..	..	..	..	1	2	3
	4	5	6	7	8	9	10
	11	12	13	14	15	16	17
	18	19	20	21	22	23	24
	25	26	27	28	29	30	31

	Sunday.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
JULY.	..	..	..	..	..	1	2
	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	29	30
AUGUST.	31	..	..	..	..	..	..
	..	1	2	3	4	5	6
	7	8	9	10	11	12	13
	14	15	16	17	18	19	20
	21	22	23	24	25	26	27
	28	29	30	31	..	..	..
SEPT.	..	..	..	..	1	2	3
	4	5	6	7	8	9	10
	11	12	13	14	15	16	17
	18	19	20	21	22	23	24
	25	26	27	28	29	30	..
OCT.	..	..	..	..	..	..	1
	2	3	4	5	6	7	8
	9	10	11	12	13	14	15
	16	17	18	19	20	21	22
	23	24	25	26	27	28	29
	30	31	..	..	..	..	..
NOV.	..	..	1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30	..	..	..
DEC.	..	..	..	..	1	2	3
	4	5	6	7	8	9	10
	11	12	13	14	15	16	17
	18	19	20	21	22	23	24
	25	26	27	28	29	30	31

1888.

	Sunday.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
JAN.	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	31	..	..	..	..
FEB.	..	..	..	1	2	3	4
	5	6	7	8	9	10	11
	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	..	..	..
MARCH.	..	..	..	..	1	2	3
	4	5	6	7	8	9	10
	11	12	13	14	15	16	17
	18	19	20	21	22	23	24
	25	26	27	28	29	30	31
APRIL.	..	..	..	..	..	..	..
	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	..	..	..	..	..
MAY.	..	..	1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30	31	..	..
JUNE.	.	..	..	..	..	1	2
	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	29	30
	..	..	..	..	..	..	..

Notable Days, 1887.

New Year's Day (Saturday)	Jan. 1	Ascension Day (Thursday)	May 19
Epiphany (Thursday)	Jan. 6	Whitsun-Day	May 29
Valentine's Day (Monday)	Feb. 14	Memorial Day (Monday)	May 30
Washington's Birthday (Tues.)	Feb. 22	Independence Day (Monday)	July 4
Ash Wednesday	Feb. 23	Town Elections * (Monday)	Oct. 3
St. Patrick's Day (Thursday)	Mar. 17	State Elections (Tuesday)	Nov. 1
Good Friday	April 8	Thanksgiving Day	Nov. 24
Easter Sunday	April 10	Christmas (Sunday)	Dec. 25

* Election of Town and City Officers in New Haven (Tuesday) Dec. 6.

Church Days, 1888.

Ash Wednesday	Feb. 15	Ascension Day (Thursday)	May 10
Good Friday	March 30	Whitsun-Day	May 20
Easter Sunday	April 1	Christmas (Tuesday)	Dec. 25

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ASTRONOMICAL.

Standard Time.

The system of time in general use in the United States and Canada was adopted by the railroads in 1883, and is illustrated by the following map. In each of the four sections shown on this map one standard of time is maintained. Thus, throughout the section marked "Eastern Time," the time of the 75th meridian is used, in the section marked "Central Time" that of the 90th meridian is used, and so on.

When it is 12 o'clock in the section marked Eastern Time—

It is 11	"	"	"	"	Central "
" 10	"	"	"	"	Mountain Time.
" 9	"	"	"	"	Pacific "



The calculations for the rising, coming to the meridian and setting of the sun, moon and planets in this Almanac are made in Eastern Standard Time, and for the section in which New Haven is located, and they may be adapted to any portion of the State by following the directions on the first page of the cover.

Longitude.

As the sun passes over 360° of longitude in twenty-four hours, or one degree in four minutes of time, we may determine the longitude of any place on the earth's surface if we have given the time when the sun passes the meridian of that place on any given day, and also the time when the sun passes the meridian of some place, as, for example, New Haven, whose longitude is known, by the

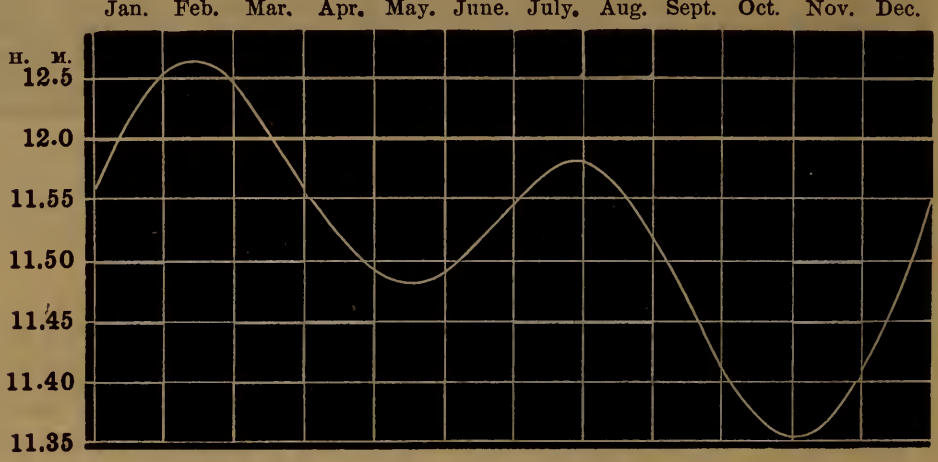
following rule: *Observe when the sun is on the meridian of the place in Eastern standard time. Find the difference between this time and the time when the sun is on the meridian of New Haven for the given day as found in the following table. Divide the minutes of time by 4 for degrees, and the seconds of time by 4 for minutes of longitude. Subtract this result from 72° 56′, the longitude of New Haven, if the observed time is earlier than that given in the table, and add the result if the observed time is later.*

[The SEXTANT is usually employed for making observations at sea. When the sun is on the meridian its altitude above the horizon is the greatest for that day.]

Sun on Meridian of New Haven.

DAY OF MONTH	JAN.	FEB.	MAR.	APR.	MAY.	JUNE.	JULY.	AUG.	SEPT.	OCT.	NOV.	DEC.
	11 h.	12 h.	12 h.	11 h.	11 h.	11 h.	11 h.	11 h.	11 h.	11 h.	11 h.	11 h.
	M. S.	M. S.	M. S.	M. S.	M. S.	M. S.	M. S.	M. S.	M. S.	M. S.	M. S.	M. S.
1.....	55.35	5.33	4.13	55.37	48.41	49.16	55.15	57.47	51.34	41.21	35.24	40.56
2.....	56.3	5.41	4.1	55.19	48.34	49.25	55.26	57.43	51.15	41.2	35.23	41.19
3.....	56.31	5.47	3.48	55.1	48.27	49.35	55.38	57.39	50.56	40.43	35.22	41.43
4.....	56.58	5.53	3.35	54.43	48.21	49.44	55.48	57.34	50.36	40.25	35.23	42.7
5.....	57.25	5.57	3.21	54.25	48.15	49.55	55.59	57.28	50.17	40.7	35.25	42.32
6.....	57.51	6.1	3.7	54.8	48.10	50.5	56.9	57.21	49.56	39.49	35.27	42.57
7.....	58.17	6.5	2.53	53.51	48.5	50.16	56.19	57.14	49.36	39.32	35.30	43.23
8.....	58.43	6.7	2.38	53.34	48.2	50.27	56.28	57.7	49.16	39.15	35.34	43.49
9.....	59.8	6.9	2.22	53.17	47.58	50.39	56.37	56.59	48.55	38.59	35.39	44.16
10.....	59.32	6.9	2.7	53.0	47.55	50.50	56.46	56.50	48.35	38.43	35.45	44.43
11.....	59.56	6.9	1.51	52.44	47.53	51.2	56.54	56.41	48.14	38.28	35.52	45.11
12.....	0.19	6.9	1.35	52.28	47.52	51.14	57.2	56.31	47.53	38.13	35.59	45.39
13.....	0.42	6.7	1.18	52.12	47.51	51.27	57.9	56.21	47.32	37.58	36.8	46.8
14.....	1.3	6.5	1.1	51.57	47.50	51.39	57.16	56.10	47.11	37.44	36.17	46.36
15.....	1.25	6.2	0.44	51.42	47.50	51.52	57.22	55.59	46.50	37.31	36.27	47.6
16.....	1.45	5.59	0.27	51.27	47.51	52.5	57.28	55.47	46.29	37.19	36.38	47.35
17.....	2.5	5.54	0.9	51.13	47.53	52.18	57.34	55.35	46.8	37.6	36.50	48.4
18.....	2.25	5.49	59.52	50.59	47.54	52.31	57.39	55.22	45.47	36.55	37.2	48.34
19.....	2.43	5.44	59.34	50.46	47.57	52.44	57.43	55.8	45.26	36.44	37.16	49.4
20.....	3.1	5.37	59.16	50.33	48.0	52.57	57.47	54.55	45.4	36.34	37.30	49.34
21.....	3.18	5.31	58.58	50.20	48.4	53.10	57.50	54.40	44.43	36.24	37.45	50.4
22.....	3.34	5.23	58.39	50.8	48.8	53.23	57.53	54.25	44.23	36.15	38.1	50.34
23.....	3.50	5.15	58.22	49.57	48.12	53.36	57.55	54.10	44.2	36.7	38.18	51.4
24.....	4.5	5.6	58.4	49.45	48.18	53.49	57.57	53.54	43.41	35.59	38.35	51.34
25.....	4.19	4.57	57.45	49.35	48.23	54.2	57.58	53.38	43.20	35.52	38.53	52.4
26.....	4.32	4.47	57.27	49.25	48.29	54.15	57.58	53.22	43.0	35.46	39.12	52.33
27.....	4.44	4.36	57.8	49.15	48.36	54.27	57.58	53.5	42.40	35.40	39.31	53.3
28.....	4.56	4.25	56.50	49.6	48.43	54.39	57.57	52.47	42.20	35.35	39.42	53.32
29.....	5.6	....	56.32	48.57	48.51	54.52	57.55	52.30	42.0	35.31	40.13	54.2
30.....	5.16	....	56.13	48.49	48.59	55.3	57.53	52.12	41.40	35.28	40.34	54.31
31.....	5.25	....	55.55	....	49.7	....	57.51	51.53	....	35.25	....	54.59

The following graphical representation of the above table will give one a general idea of the irregularities produced in the time of the sun's meridian passage for the several months of the year on account of the form of the earth's orbit, and the inclination of the earth's axis.



Latitude.

The latitude of any place may be found from an observation made with the sextant by the following rule : *Observe the altitude of the sun in degrees and minutes at the instant it is on the meridian. Add to this altitude* 16 *minutes, the amount of the sun's semi-diameter, and from this sum subtract the refraction and dip as found in the tables below. The result will be the true altitude of the sun. From the true altitude subtract the declination of the sun for the day in question, as found in the following table, if the declination is north, but add the same if the declination is south. Subtract the result from* 90° *for the latitude of the place.*

Refraction. Dip.

Apparent Altitude.	Refraction.	Apparent Altitude.	Refraction.	Apparent Altitude.	Refraction.	Height of Eye.	Dip.
0° 0′	34′	1° 22′	22′	4° 56′	10′	Feet.	
0 1	33	1 33	21	5 35	9	1	1′
0 12	32	1 43	20	6 23	8	4	2
0 19	31	1 55	19	7 23	7	9	3
0 26	30	2 8	18	8 41	6	17	4
0 33	29	2 21	17	10 30	5	26	5
0 40	28	2 36	16	13 10	4	37	6
0 48	27	2 53	15	17 25	3	51	7
0 56	26	3 11	14	25 20	2	66	8
1 4	25	3 32	13	43 30	1	84	9
1 13	24	3 56	12	90	0	103	10
1 16	23	4 24	11	....	..	...	..

Declination of the Sun at Transit, New Haven.

Day of Month.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′
1	23 0S	17 2S	7 31S	4 37N	15 7N	22 5N	23 7N	18 0N	8 14N	3 15S	14 29S	21 51
2	22 54	16 45	7 8	5 0	15 25	22 13	23 2	17 45	7 53	3 38	14 49	22 0
3	22 49	16 28	6 45	5 23	15 43	22 20	22 58	17 29	7 31	4 1	15 7	22 8
4	22 42	16 10	6 22	5 46	16 1	22 27	22 53	17 13	7 8	4 24	15 26	22 17
5	22 36	15 52	5 59	6 8	16 18	22 34	22 47	16 57	6 46	4 47	15 44	22 24
6	22 29	15 33	5 35	6 31	16 35	22 40	22 41	16 41	6 24	5 11	16 2	22 32
7	22 21	15 14	5 12	6 54	16 51	22 46	22 35	16 24	6 1	5 34	16 20	22 39
8	22 13	14 56	4 49	7 16	17 8	22 52	22 28	16 7	5 39	5 56	16 38	22 45
9	22 5	14 36	4 25	7 38	17 24	22 57	22 21	15 50	5 16	6 19	16 55	22 51
10	21 56	14 17	4 2	8 1	17 40	23 2	22 14	15 32	4 54	6 42	17 12	22 56
11	21 47	13 57	3 38	8 23	17 55	23 6	22 6	15 15	4 31	7 5	17 29	23 2
12	21 37	13 37	3 15	8 45	18 10	23 10	21 58	14 57	4 8	7 27	17 45	23 6
13	21 27	13 17	2 51	9 6	18 25	23 14	21 49	14 38	3 45	7 50	18 1	23 10
14	21 16	12 57	2 27	9 28	18 40	23 17	21 40	14 20	3 22	8 12	18 17	23 14
15	21 5	12 36	2 4	9 49	18 54	23 19	21 31	14 1	2 59	8 35	18 32	23 17
16	20 54	12 16	1 40	10 11	19 8	23 22	21 21	13 43	2 36	8 57	18 48	23 20
17	20 42	11 55	1 16	10 32	19 22	23 24	21 11	13 23	2 12	9 19	19 2	23 22
18	20 30	11 34	0 53	10 53	19 35	23 25	21 1	13 4	1 49	9 41	19 17	23 24
19	20 18	11 12	0 29	11 14	19 48	23 26	20 50	12 45	1 26	10 2	19 31	23 26
20	20 5	10 51	0 5S	11 34	20 1	23 27	20 39	12 25	1 3	10 24	19 45	23 27
21	19 51	10 29	0 18N	11 55	20 13	23 27	20 28	12 5	0 39	10 46	19 58	23 27
22	19 38	10 7	0 42	12 15	20 25	23 27	20 16	11 45	0 16N	11 7	20 11	23 27
23	19 24	9 45	1 6	12 35	20 37	23 26	20 4	11 25	0 8S	11 28	20 24	23 27
24	19 9	9 23	1 29	12 55	20 48	23 25	19 51	11 4	0 31	11 49	20 36	23 26
25	18 55	9 1	1 53	13 15	20 59	23 24	19 38	10 43	0 54	12 10	20 48	23 24
26	18 40	8 38	2 17	13 34	21 9	23 22	19 25	10 23	1 18	12 30	20 59	23 22
27	18 24	8 16	2 40	13 53	21 20	23 20	19 12	10 2	1 41	12 51	21 10	23 20
28	18 9	7 53	3 3	14 12	21 29	23 17	18 58	9 40	2 5	13 11	21 21	23 17
29	17 52	.. ..	3 27	14 31	21 39	23 14	18 44	9 19	2 28	13 31	21 31	23 14
30	17 36	.. ..	3 50	14 49	21 48	23 11	18 30	8 58	2 51	13 51	21 41	23 10
31	17 19	.. ..	4 13	.. ..	21 56	.. ..	18 15	8 36	.. ..	14 10	.. ..	23 6

Example.—On the 16th of April the sun is observed to be on the meridian at $11^h\ 15^m\ 30^s$ Eastern time. The observed altitude is 60° 15′. Required the longitude and latitude of the place.

Longitude.

Sun on meridian of New Haven	11^h	51^m	27^s
Time of observation	11^h	15^m	30^s
Difference of time	4)	35^m	57^s
Difference of Longitude		8°	59′
From Longitude of New Haven	72°	56′	
Subtract	8°	59′	
	63°	57′	Longitude of place.

Latitude.

Observed altitude		60°	15′
Add sun's semi-diameter			16′
		60°	31′
Subtract refraction (for 60°)	1′		
" Dip (height of observer 10 feet above sea level)	3′	=	4′
True altitude,		60°	27′
Subtract declination of sun		10°	11′ N.
		50°	16′

Subtract 50° 16′ from 90° = 39° 44′ N. latitude of place.

Map of the Zodiacal Constellations.

The straight line running through the whole length of these maps is called the equator, and its place on the sky is exactly over the equator of the earth. The heavy curved line in these maps is called the Ecliptic, and is the apparent path of the sun among the stars. The region eight degrees north and south of the ecliptic is called the Zodiac; and within the limits of this region the moon and large planets always appear to move. The Zodiac was divided by the ancient astronomers into twelve equal parts called *signs*. The first of these signs begins at the point of the equator through which the sun passes on the 21st of March, and this point is called the Vernal Equinox, and these signs are counted onwards from west to east according to the annual course of the sun around the circle. The names of these twelve signs taken in order are Aries the Ram, Taurus the Bull, Gemini the Twins, Cancer the Crab, Leo the Lion, Virgo the Virgin, Libra the Balance, Scorpio the Scorpion, Sagittarius the Archer, Capricornus the Goat, Aquarius the Water Bearer, Pisces the Fishes. The above are also the names of the Zodiacal Constellations. Two thousand years ago these signs and constellations were coincident, but, owing to the Procession of the Equinoxes, the point where the sun crossed the equator has moved backward at the rate of about one degree in seventy years, so that the position of the vernal equinox has changed among the constellations about 30° or one sign. Hence the sign Aries now embraces the constellation Pisces, the sign Taurus the constellation Aries, and so on around the circle. The places of the sun, moon and planets are given in the calendar pages of this Almanac in the CONSTELLATIONS of the Zodiac instead of the signs, each of the constellations being assumed to extend 30° on the ecliptic. Besides these constellations there are given some of the other principal stars and groups of stars 30° north and south of the equator.

The Maps on the Calendar Pages.

These maps show the paths of the sun, moon and stars among the constellations, but are not intended to represent any portion of the heavens like the maps just described. The scale of the calendar page maps is much larger north and south than east and west. The position of the moon among the constellations for any day is that point of the moon's path exactly opposite the day of the month. On the bottom of the map are the names of the zodiacal constellations. The places of the sun and principal planets for the first and last days of the month are marked on this map with some of the principal fixed stars. Compare these with the large maps of the Zodiacal Constellations to find the places of the moon and planets.

The Map of the Northern Constellations.

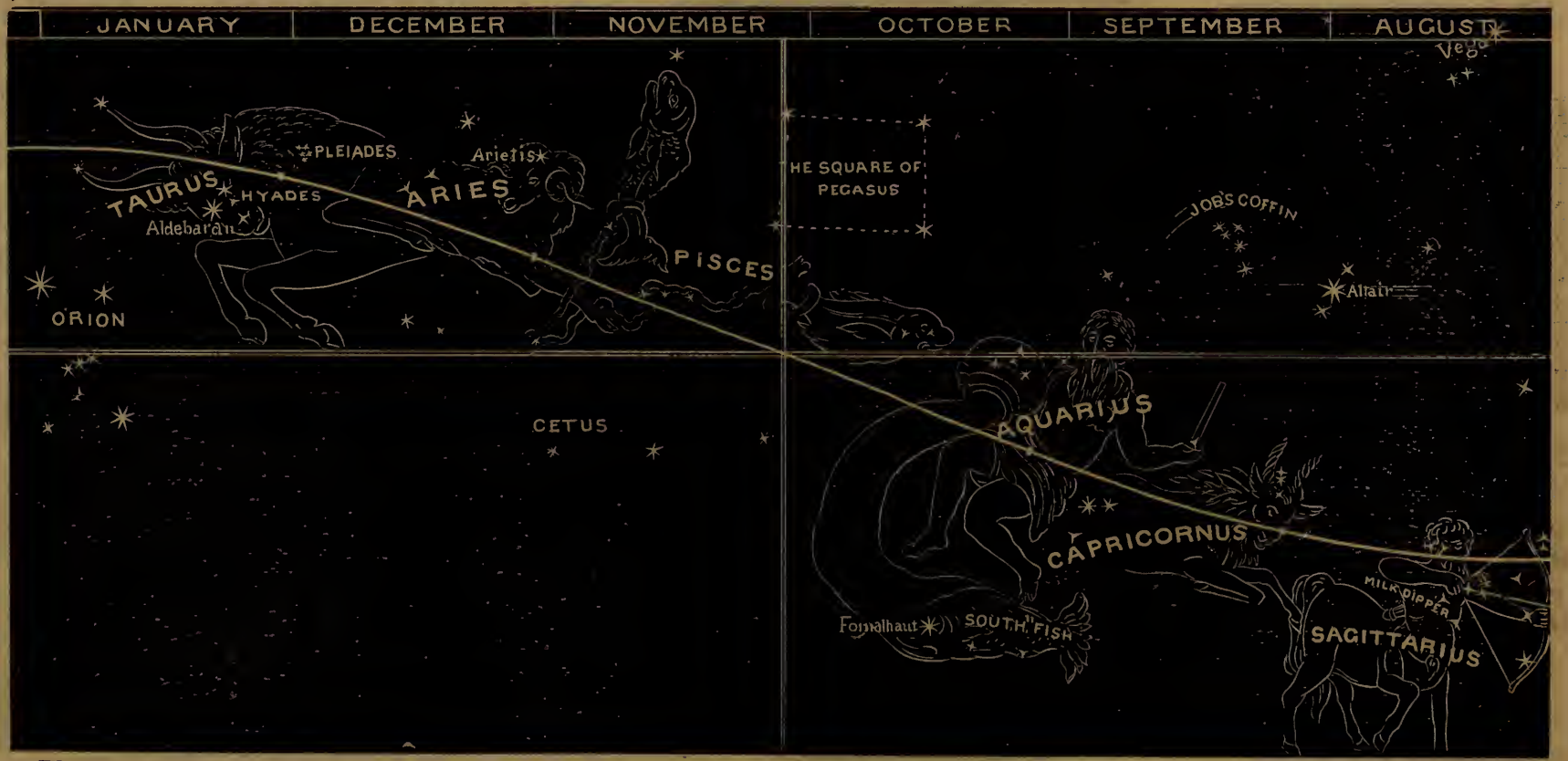
The following map shows the principal stars and constellations within a radius of 45° from the North Pole of the sky. The figures whose outlines were suggested to the ancients by the grouping of the stars in this portion of the sky, and from which the several constellations take their names, are pictured on this map. The best known group is the Dipper, in the Constellation Great Bear.



The two extreme stars in the bowl pointing toward the North Star are called Pointers, and are just 5° apart. When this page is held in an upright position, the map will represent the Northern Constellations as a person would see them when facing the north, January 1, at 9 P. M., the North Star appearing about half way between the horizon and zenith. If the map be turned on its center till the middle of January is uppermost, it will give the aspect of these constellations at 10 P. M. January 1. If turned till the first of February is uppermost, it will answer for 11 o'clock January 1, and so on. Again, if the map is turned in the opposite direction till the middle of December is uppermost, it will represent the aspect at 8 P. M. January 1. If December 1st is uppermost it gives the aspect for January 1st at 7 P. M. Whatever date is uppermost, the map in that position will represent the aspect of the heavens for that date at 9 P. M., and to find the aspect at any other hour of the night, proceed as in January, remembering that the number of half months through which the map is turned corresponds to the number of hours before and after 9 o'clock on the date in question.

THE ZODIACAL CONSTELLATIONS.

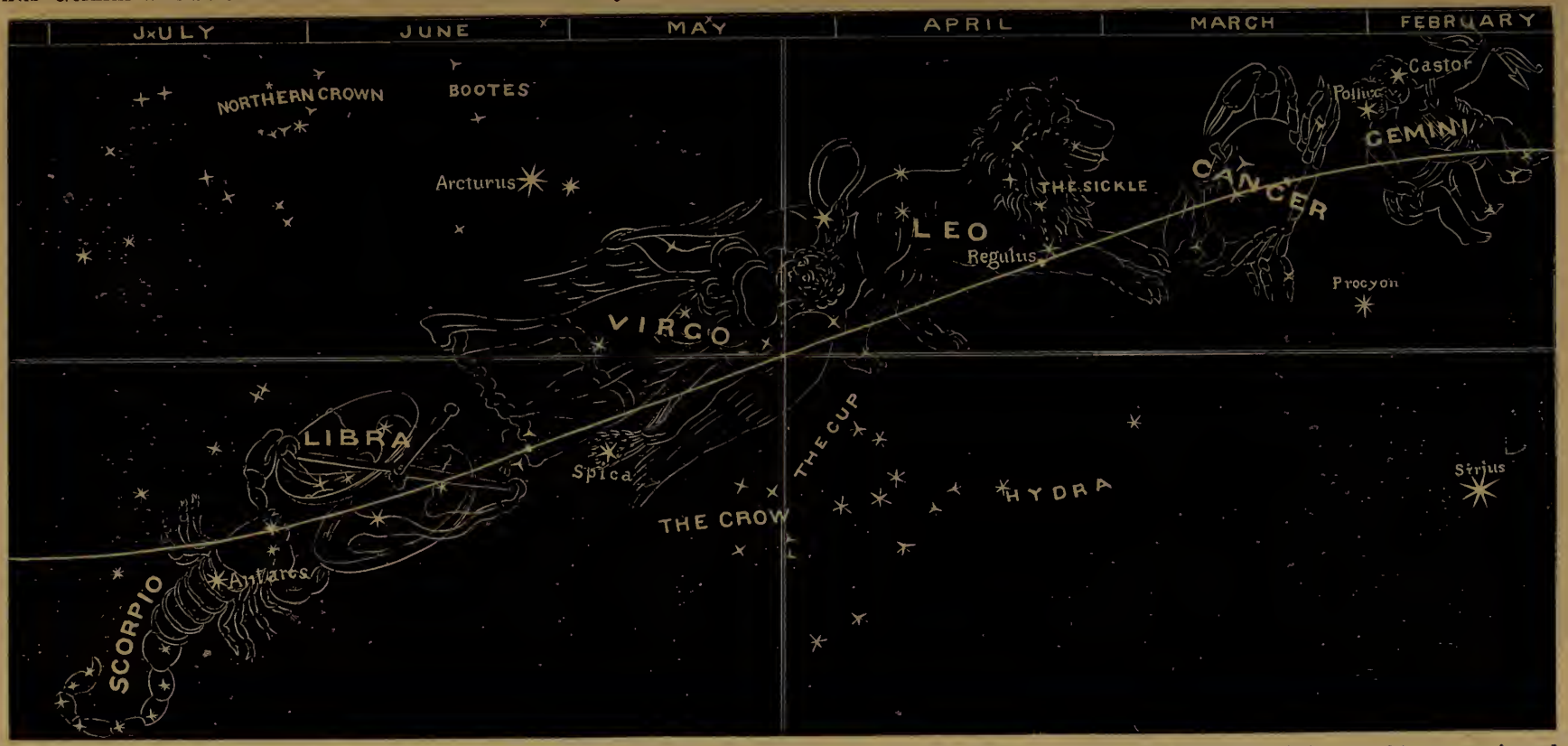
The names of the months printed on the top of the map show what seasons of the year these constellations will be on the meridian at 9 P. M.; thus Taurus will be on the meridian Jan. 15th.



The Constellations in which the sun moves from the beginning of the year to June 21st. The sun enters Sagittarius the last of December. It crosses the equator, entering Pisces March 21st, and reaches the highest point north of the equator June 21st.

MAP OF THE ZODIACAL CONSTELLATIONS.

The names of the months at the top of the map show what seasons of the year these constellations will be on the meridian at 9 P. M.; thus Gemini will be on the meridian the last of February or 1st of March, at 9 P.M., or at 8 P.M. the middle of March, 7 P.M. April 1st, etc.



The Constellations in which the sun moves from June 21st to the end of the year. The sun enters Gemini June 21st, crossing the equator and entering Virgo Sept. 21st, and reaches the point furthest south of the equator Dec. 21st.

Rising, Southing and Setting of the Planets.

	VENUS.			MARS.			JUPITER.			SATURN.		
	Rises.	South.	Sets.	Rises.	South.	Sets.	Rises.	South.	Sets.	Rises.	South.	Sets.
	morn.	aft.	aft.	morn.	aft.	eve.	morn.	morn.	aft.	aft.	morn.	morn.
Jan. 1	7 51	0 27	5 2	8 55	1 45	6 34	1 48	7 11	0 33	5 6	0 35	7 59
15	7 58	0 46	5 35	8 32	1 34	6 36	1 2	6 22	morn. 11 43	4 5	eve. 11 31	7 0
Feb. 1	7 51	1 4	eve. 6 18	7 59	1 19	6 39	0 1	5 20	10 39	2 52	10 18	5 49
15	7 38	1 15	6 52	7 31	1 6	6 40	eve. 11 5	4 27	9 46	1 53	9 20	4 51
Mar. 1	7 21	1 24	7 26	7 0	0 51	6 41	10 9	3 32	8 51	0 55	8 22	3 53
15	7 4	1 32	8 0	6 29	0 35	6 41	9 10	2 34	7 54	morn. 11 59	7 26	2 58
Apr. 1	6 45	1 43	8 40	5 51	0 16	6 41	7 55	1 21	6 43	10 53	6 20	1 52
15	6 36	1 55	9 15	5 21	0 0	6 40	6 52	0 20	5 44	10 0	aft. 5 28	0 59
May 1	6 36	2 13	9 51	4 48	morn. 11 43	6 38	aft. 5 39	eve. 11 5	4 36	9 2	4 29	eve. 11 56
15	6 47	2 30	10 14	4 20	11 28	6 36	4 36	10 4	3 37	8 13	3 39	11 06
June 1	7 14	2 49	10 25	3 51	11 11	6 32	3 21	8 52	2 26	7 14	2 40	10 5
15	7 40	2 59	10 19	3 28	10 57	6 25	2 24	7 54	1 29	6 27	1 52	9 16
July 1	8 7	3 3	9 59	3 8	10 42	6 16	1 21	6 51	0 26	5 34	0 57	8 20
15	8 26	2 59	9 33	2 53	10 28	6 4	0 29	aft. 5 59	eve. 11 28	4 48	0 10	7 31
Aug. 1	8 36	2 43	8 50	2 38	10 11	aft. 5 44	morn. 11 30	4 57	10 25	3 52	morn. 11 12	6 32
15	8 30	2 17	8 4	2 27	9 55	5 23	10 44	4 9	9 34	3 6	10 24	aft. 5 43
Sept. 1	7 50	1 21	6 52	2 15	9 34	4 53	9 50	3 12	8 33	2 9	9 26	4 43
15	6 36	0 7	aft. 5 38	2 5	9 15	4 26	9 8	2 26	7 45	1 21	8 37	3 52
Oct. 1	4 45	morn. 10 33	4 21	1 53	8 52	3 50	8 21	1 35	6 50	0 26	7 40	2 54
15	3 33	9 34	3 36	1 42	8 30	3 17	7 41	0 52	6 2	eve. 11 32	6 49	2 2
Nov. 1	2 53	8 56	3 0	1 26	8 1	2 35	6 53	morn. 11 59	aft. 5 6	10 29	5 45	0 58
15	2 47	8 43	2 38	1 12	7 36	1 59	6 14	11 17	4 19	9 35	4 51	0 4
Dec. 1	2 58	8 37	2 17	0 53	7 5	1 17	5 28	10 28	3 27	8 31	3 48	morn. 11 0
15	3 16	8 39	2 1	0 35	6 37	0 39	4 48	9 45	2 41	7 33	2 50	10 4
31	3 43	8 47	1 50	0 11	6 3	morn. 11 55	3 58	8 51	1 45	6 25	1 44	8 58

Evening and Morning Stars, Etc.

Venus first becomes visible as evening star toward the end of January. It slowly recedes from the sun, from which it does not attain its greatest apparent distance till July 13. Through June Venus sets three hours after sunset. It attains its greatest brilliancy Aug. 15. At this date it is rapidly nearing the sun, and so becomes invisible before the close of the month; then swinging to the west of the sun, it again becomes visible, as morning star, by October 1; reaches again its greatest brilliancy October 28, and exhibits great splendor the rest of the year, rising through December some 3½ hours before sunrise.

Mars is scarcely noticeable this year. At the beginning of 1887 it is a very inconspicuous evening star, setting two hours after the sun. It slowly draws nearer the sun, but does not reach it till the end of April. After April 24 it is morning star, but will hardly be visible till the close of July. It is then incon-

spicuous, but slowly increases in brightness the rest of the year. Dec. 31 it rises just after midnight.

Jupiter is a brilliant morning star at the beginning of the year. April 21 it is 180° from the sun, and hence rises at about sunset. It remains a brilliant evening star till October, when it disappears in the rays of the sun. Jupiter becomes again visible west of the sun by December, and remains a bright morning star the rest of the year.

Saturn is in opposition with the sun Jan. 9 and rises near sunset. It remains a bright evening star till the close of June; becomes again visible in the east before sunrise by the middle of August, and is a morning star the rest of the year.

Mercury is seldom seen. The following are the best dates for observation: March 5 Mercury sets north of the sunset point at 7.21 P. M. (well situated for observation). April 17, rises south of sunrise point, at 4.18 A. M. July 1, sets slightly south of sunset point, at 8.58 P. M. Aug. 16, rises slightly north of sunrise point, at 3.30 A. M. Oct. 27, sets south of sunset point, at 5.46 P. M. Dec. 6, rises north of sunrise point, at 5.17 A. M., and will be very well situated for observation.

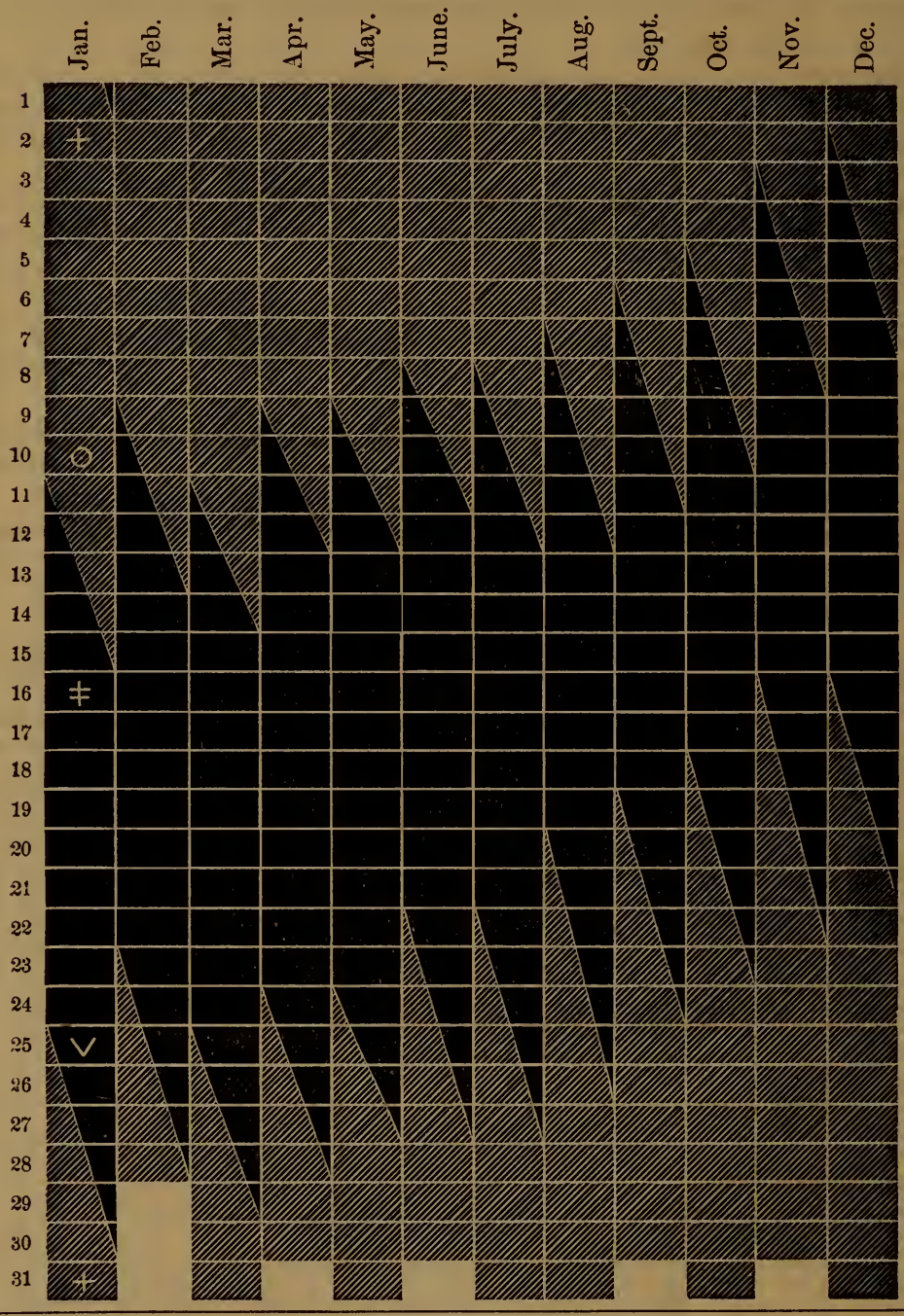
Uranus, which is barely visible to the naked eye, is brightest during March and April. April 24 Uranus is 2¼° due south of Gamma Virginis, a star of the third magnitude.

Neptune is invisible, except by the use of a telescope. It is brightest during November and December, and is 5½° south of the Pleiades.

Moon South—New Haven.

Day of Month.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
	aft.	aft.	aft.	eve.	eve.	eve.	eve.	eve.	eve.	eve.	morn	morn
1....	5 30	6 20	5 2	6 23	7 2	8 28	9 1	10 32	11 43	11 49	———	0 11
2....	6 12	7 9	5 51	7 19	7 56	9 21	9 56	11 24	morn	morn	0 40	1 1
3....	6 56	8 1	6 43	8 15	8 59	10 15	10 51	morn	0 26	0 31	1 26	1 53
4....	7 42	8 56	7 37	9 11	9 43	11 10	11 46	0 14	1 9	1 13	2 14	2 46
5....	8 30	9 54	8 34	10 7	10 37	morn	morn	1 1	1 51	1 57	3 5	3 39
6....	9 22	10 53	9 32	11 3	11 33	0 7	0 40	1 46	2 33	2 42	3 57	4 31
7....	10 16	11 52	10 31	11 58	morn	1 3	1 32	2 30	3 15	3 29	4 49	5 23
8....	11 14	morn	11 29	morn	0 29	1 58	2 21	3 12	3 59	4 17	5 42	6 14
9....	morn	0 51	morn	0 54	1 26	2 51	3 7	3 54	4 45	5 9	6 35	7 5
10....	0 13	1 48	0 25	1 50	2 22	3 41	3 51	4 36	5 33	6 1	7 28	7 57
11....	1 12	2 43	1 21	2 46	3 17	4 29	4 34	5 19	6 24	6 55	8 21	8 50
12....	2 10	3 36	2 16	3 42	4 11	5 13	5 16	6 4	7 17	7 50	9 10	9 45
13....	3 6	4 29	3 11	4 36	5 1	5 57	5 58	6 52	8 12	8 45	10 9	10 43
14 ...	4 0	5 21	4 5	5 29	5 49	6 39	6 41	7 42	9 9	9 40	11 5	11 41
15....	4 52	6 13	4 59	6 19	6 35	7 21	7 25	8 36	10 5	10 35	aft.	aft.
16....	5 43	7 5	5 52	7 8	7 18	8 3	8 12	9 31	11 2	11 31	1 1	1 38
17....	6 34	7 57	6 44	7 54	8 1	8 47	9 2	10 28	11 58	aft.	2 0	2 33
18....	7 25	8 48	7 35	8 38	8 42	9 33	9 55	11 26	aft.	1 24	2 58	3 25
19....	8 16	9 38	8 24	9 21	9 25	10 22	10 50	aft.	1 48	2 22	3 53	4 14
20....	9 8	10 26	9 11	10 3	10 8	11 13	11 47	1 18	2 44	3 19	4 46	4 59
21....	10 0	11 13	9 56	10 45	10 53	aft.	aft.	2 13	3 39	4 16	5 34	5 42
22....	10 51	11 58	10 40	11 28	11 40	1 2	1 40	3 7	4 35	5 11	6 20	6 24
23....	11 41	aft.	11 22	aft.	aft.	1 58	2 35	4 0	5 30	6 3	7 4	7 6
24....	aft.	1 24	aft.	0 57	1 21	2 54	3 29	4 53	6 24	6 52	7 46	7 48
25....	1 16	2 6	0 47	1 44	2 15	3 43	4 21	5 47	7 17	7 39	8 28	8 31
26....	2 1	2 48	1 29	2 33	3 9	4 41	5 13	6 41	8 7	8 23	9 10	9 16
27....	2 44	3 31	2 13	3 25	4 4	5 33	6 5	7 35	8 55	9 6	9 52	10 4
28....	3 26	4 15	2 59	4 18	4 58	6 24	6 57	8 28	9 41	9 48	10 36	10 54
29....	4 8	.....	3 46	5 13	5 51	7 15	7 50	9 20	10 25	10 30	11 23	11 46
30....	4 50	.....	4 36	6 7	6 43	8 8	8 45	10 9	11 7	11 12	morn	morn
31 ...	5 34	.....	5 29	.....	7 35	.....	9 39	10 57	.....	11 55	.....	0 40

CHART OF MOONLIGHT EVENINGS, 1887.



The shaded spaces indicate moonlight evenings. To illustrate: January 2, $+_7$ marks the first evening when the moon sets after midnight. January 10, O is the last evening when the moon rises before twilight ends. January 16, ‡ indicates the last evening when the moon sets after midnight. January 25, V is the first evening when the new moon is visible.

Chronological Cycles, Etc., 1887.

Dominical Letter.....B	Roman Indiction.....15
Epact (Moon's Age, Jan. 1)..... 6	Jewish Era.....5647–8
Solar Cycle.....20	Julian Period..... ...6600
Lunar Cycle or Golden Number... 7	Independence of the U. S... 111–112

Eclipses, 1887.

This year there will be four eclipses; two of the sun and two of the moon.

I. A partial eclipse of the moon, Feb. 8, visible in Conn. and U. S. Eastern Time:—Moon enters penumbra 3^h 1^m morn.; enters shadow 4^h 14^m; middle of eclipse, 5^h 22^m; moon leaves shadow 6^h 30^m; leaves penumbra 7^h 43^m morn. Magnitude of eclipse, 0.44 (Moon's diameter, 1).

II. An annular eclipse of the sun, Feb. 22; invisible in U. S. All the phases of the annular eclipse will be visible along a line drawn from southern Peru nearly to Tasmania.

III. A partial eclipse of the moon, Aug. 3; visible in the Eastern Hemisphere.

IV. A total eclipse of the sun, Aug. 19; invisible in Conn. All phases of the total eclipse are visible along a line drawn from the Hartz Mountains, Saxony, through Europe, Central Asia, and Japan, into the Pacific.

The Tides.

The morning and afternoon High Tides at New Haven, New London, Stonington and Block Island are given in Eastern Standard Time for every day in the year. The predictions are based on the published tables and the latest formulas obtainable from the U. S. Coast Survey. Previous to the year 1886, it is understood that the constants used in the Coast Survey formulas for computing the tides for stations on the Conn. Coast, were obtained by a method which did not take into account the declination of the Moon, but the formulas for 1886 did take account of this element in the tide-producing forces. The tables in the **Connecticut Almanac** for 1886 for the several stations on the Conn. coast were made in accordance with the methods of the Coast Survey. In these tables in many instances two successive High Tides were predicted to occur within less than twelve hours of each other. The accuracy of such predictions having been challenged, it is proper to state on the authority of the Coast Survey, that the actual observations of the tides at New London, as shown by their records in previous years, afford very frequent examples where the interval between two successive High Tides is less than twelve hours, and some instances where this interval is reduced to about eleven hours. The Coast Survey record kept at the S. W. Ledge Light House, New Haven, shows for a *single month* taken at random, *four* instances where this interval is less than twelve hours. The Coast Survey's analysis of the Tidal observations, on which the constants used in the predictions for 1887 are based, it is understood, takes account of all the elements which affect the Tides, except the winds and the barometric pressure, and these of course cannot be foretold.

HIGH TIDE 1887 JANUARY

D. M.	D. W.	New Haven. A. M.	New Haven. P. M.	New London. A. M.	New London. P. M.	Stonington. A. M.	Stonington. P. M.	Block Island. A. M.	Block Island. P. M.	D. M.
1	S	3 48	3 41	2 14	2 7	1 59	1 52	11 40	———	1
2	S	4 50	4 41	3 18	3 9	2 59	2 50	0 31	0 30	2
3	M	5 39	5 34	4 6	4 1	3 38	3 33	1 31	1 38	3
4	T	6 28	6 27	4 51	4 50	4 12	4 11	2 31	2 47	4
5	W	7 19	7 22	5 33	5 36	4 50	4 53	3 24	3 47	5
6	T	8 0	8 8	6 14	6 22	5 31	5 39	4 14	4 42	6
7	F	8 45	9 1	6 53	7 9	6 14	6 30	4 58	5 29	7
8	S	9 27	9 51	7 33	7 57	7 4	7 28	5 37	6 10	8
9	S	10 7	10 37	8 13	8 43	7 54	8 24	6 15	6 51	9
10	M	10 50	11 28	8 56	9 34	8 37	9 15	7 0	7 39	10
11	T	11 37	———	9 44	10 30	9 28	10 14	7 39	8 20	11
12	W	0 23	12 27	10 36	11 30	10 22	11 16	8 23	9 2	12
13	T	1 21	1 20	11 34	———	11 21	———	9 12	9 50	13
14	F	2 11	2 15	0 32	12 48	0 19	0 23	10 4	10 45	14
15	S	3 9	3 14	1 35	1 40	1 20	1 25	11 8	———	15
16	S	4 8	4 15	2 36	2 43	2 17	2 24	0 0	0 20	16
17	M	5 9	5 18	3 36	3 45	3 8	3 17	1 9	1 36	17
18	T	6 4	6 17	4 31	4 44	4 3	4 16	2 13	2 47	18
19	W	7 0	7 16	5 23	5 39	4 44	5 0	3 22	4 1	19
20	T	7 57	8 16	6 11	6 30	5 28	5 47	4 20	5 3	20
21	F	8 49	9 12	6 57	7 20	6 18	6 41	5 8	5 54	21
22	S	9 35	10 3	7 41	8 7	7 12	7 38	5 51	6 36	22
23	S	10 15	10 48	8 21	8 54	8 2	8 35	6 30	7 15	23
24	M	10 54	11 29	9 1	9 36	8 45	9 20	7 4	7 50	24
25	T	11 30	———	9 37	10 20	9 21	10 4	7 43	8 29	25
26	W	0 13	12 8	10 17	11 8	10 3	10 54	8 16	8 57	26
27	T	0 59	12 41	10 55	11 47	10 42	11 34	8 51	9 26	27
28	F	1 33	1 17	11 31	———	11 18	———	9 24	10 3	28
29	S	2 28	1 47	0 49	12 8	0 36	———	10 2	10 43	29
30	S	3 17	2 35	1 43	1 1	1 28	0 46	10 49	11 43	30
31	M	4 8	3 38	2 36	2 6	2 17	1 47	11 48	———	31

Compared with **NEW HAVEN,** High Water at **Sachem's Head** is 16 minutes earlier. **Bridgeport,** 4 minutes later. **Sheffield Island,** 16 minutes later.

Compared with **NEW LONDON,** (Light-House), High Water at **Navy Yard Site** is 22 minutes later. **Norwich,** 45 minutes later. **Little Gull Island,** 11 minutes later. **Saybrook,** 1 hour later.

High Water is 7 minutes earlier at **Watch Hill** than at **Stonington.**

High Water is 1 hour later at **Montauk Pt.** than at **Block Island.**

Greatest High Tide—at New Haven, 22d, A. M., 6.7 ft. above level of average low water. New London, 20th, A. M., 3.2 ft.

Smallest High Tide—at New Haven, 30th, P.M., 5.0 ft ; at New London, 30th, 1.7 ft.

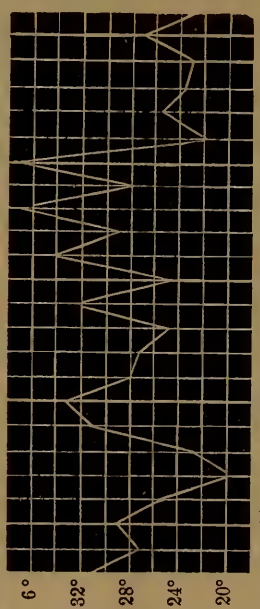
See General Tide Table.

METEOROLOGICAL RECORD.

AVERAGE.

D M	Bar.	Tem	Rel Hu
1			
2	30.07	27° .3	75.6
3			
4	30.07	27 .1	75.8
5			
6	30.07	26 .9	76.
7			
8	30.08	26 .7	76.3
9			
10	30.08	26 .6	76.6
11			
12	30.08	26 .5	76.6
13			
14	30.08	26 .4	76.6
15			
16	30.08	26 .3	76.7
17			
18	30.08	26 .3	76.8
19			
20	30.08	26 .2	76.8
21			
22	30.07	26 .2	76.9
23			
24	30.07	26 .3	77.
25			
26	30.07	26 .3	77.
27			
28	30.07	26 .3	77.
29			
30	30.07	26 .4	77.
31			

Comparative Temperature.



Prevailing wind, N. W.

Dry wind, W.

Wet wind, S.

Probable amount of rain, 4 in.

Greatest amount of rain in the last twenty-four years (Middletown), 8.2 in.

Least amount of rain in the last twenty-four years (Middletown), 1.9 in.

Probable highest temperature, 51°.

Probable lowest temperature, 1°.

Highest temperature observed, 64°.

Lowest temperature observed, 24°.

For New London: wet wind, S.-E.; dry wind, W.

Comparative Rainfall.



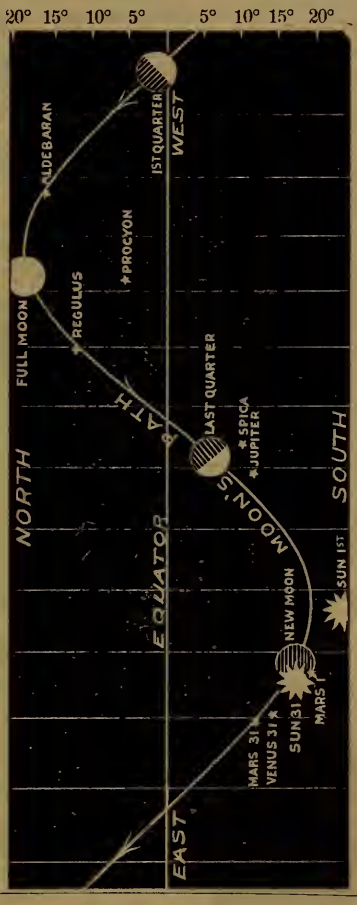
Church Days, Holidays, etc.	d.
Circumcision	1
1st Sunday after Christmas	2
Epiphany	6
1st Sunday after Epiphany	9
2d Sunday after Epiphany	16
3d Sunday after Epiphany	23
Conversion of St. Paul	25
4th Sunday after Epiphany	30

Moon's Phases, etc.				
First Quarter	2d	7h	21m	morn.
Full Moon	9	5	32	aft.
Last Quarter	16	10	22	morn.
New Moon	23	10	1	eve.
Perigee	12	1	—	morn.
Apogee	28	2	—	morn.

In Eastern Time—that of the 75th Meridian west from Greenwich.

D. M.	D. W.	The Sun. Rises h. m.	Sets h. m.	The Moon. Rises Morn. h. m.	Sets Eve. h. m.
1	Sat	7 18	4 33	11 26	11 42
2	S	7 18	4 34	11 54	morn
3	M	7 18	4 35	aft.	0 39
4	Tu	7 18	4 36	12 53	1 38
5	W	7 18	4 37	1 28	2 38
6	Th	7 18	4 38	2 7	3 40
7	Fri	7 18	4 39	2 51	4 41
8	Sat	7 18	4 40	3 44	5 45
9	S	7 18	4 41	4 45	6 44
10	M	7 17	4 42	5 52	7 38
11	Tu	7 17	4 43	7 0	8 26
12	W	7 17	4 44	8 14	9 9
13	Th	7 16	4 45	9 26	9 49
14	Fri	7 16	4 46	10 37	10 26
15	Sat	7 16	4 47	11 45	10 59
16	S	7 15	4 48	morn	11 35
17	M	7 15	4 50	0 53	aft.
18	Tu	7 14	4 51	1 59	12 47
19	W	7 14	4 52	3 3	1 27
20	Th	7 13	4 53	4 4	2 13
21	Fri	7 12	4 54	5 0	3 2
22	Sat	7 12	4 55	5 52	3 53
23	S	7 11	4 57	6 38	4 48
24	M	7 10	4 58	7 20	5 45
25	Tu	7 9	4 59	7 56	6 42
26	W	7 9	5 0	8 29	7 38
27	Th	7 8	5 2	8 59	8 36
28	Fri	7 7	5 3	9 28	9 32
29	Sat	7 6	5 4	9 56	10 29
30	S	7 5	5 5	10 24	11 26
31	M	7 4	5 7	10 53	morn

Moon's Path among the Constellations.



The Sun.

At the Beginning of this Month:

Day breaks 5.38.

Twilight ends 6.13.

Length of day, 9h.15m.

Sun on noon mark 11.56. (See page 4.)

Sun is 23° S. of Equator: it rises 30° S. of E., and sets 30° S. of W.

During the Month:

The sun moves from the constellation Sagittarius into Capricornus, as shown on the map.

It is 6° further north on the 31st than on the 1st.

The days grow 48 min. longer, the mornings increasing 14 min., the afternoons 34 min.

The Moon.

New Moon may be first seen the 25th. It sets then at 6.42, 17° S. of W.

The *best moonlight evenings* are between the 2d and 12th; see also p. 12.

The map shows that the moon is *furthest north* the 8th, and *furthest south* the 21st.

Also that the moon passes north of Aldebaran the 6th; north of Spica the 15th; north of Jupiter the 16th; north of Mars the 25th.

Astronomical Notes.

(For Maps of Constellations, see pages 7, 8 and 9.) The planet **Saturn** is at its brightest this month: as twilight fades, it may be seen rising north of the east point of the horizon. The two bright stars northeast of Saturn are **Castor** and **Pollux** in Gemini. Beside Saturn, **Mars** is the only visible planet ranked as evening star during January: it is, however, far less conspicuous: through the month it sets some two hours after the sun, and in the W.S.W. Toward the end of January the planet **Venus** will become barely visible as evening star: January 31 it will appear 4 degrees W. S. W. of Mars. The crescent moon will appear very close to Mars the 25th; an opera-glass will be required to show the planet. The brightest *Fixed Star* in the sky is **Sirius,** in the Big Dog, rising S. E. by 7 P. M., January 1, 5 P. M. the 31st: northeast of Sirius is **Procyon,** in the Little Dog: **Capella,** a splendid white star in Auriga, is high above the northeastern horizon: southwest of Auriga is **Taurus,** containing the V-shaped group of fine stars called the **Hyades,** and the well-known **Pleiades** or Seven Stars, also the bright red star **Aldebaran**: this star is hidden from view (*occulted*) by the moon January 6, about 5.30–6.20 P. M. In the southeastern sky shines **Orion,** the most brilliant constellation in the heavens.

HIGH TIDE 1887 FEBRUARY

D. M.	D. W.	New Haven. A. M.	New Haven. P. M.	New London. A. M.	New London. P. M.	Stonington. A. M.	Stonington. P. M.	Block Island. A. M.	Block Island. P. M.	D. M.
1	T	5 1	4 43	3 29	3 11	3 10	2 52	0 33	12 46	1
2	W	5 51	5 40	4 18	4 7	3 50	3 39	1 38	2 2	2
3	T	6 41	6 46	5 4	5 9	4 25	4 30	2 40	3 15	3
4	F	7 34	7 48	5 48	6 2	5 5	5 19	3 37	4 16	4
5	S	8 24	8 45	6 32	6 53	5 53	6 14	4 26	5 8	5
6	S	9 9	9 36	7 15	7 42	6 36	7 3	5 10	5 53	6
7	M	9 52	10 24	7 58	8 30	7 39	8 11	5 52	6 35	7
8	T	10 35	11 15	8 41	9 21	8 22	9 2	6 41	7 24	8
9	W	11 21	———	9 28	10 15	9 12	9 59	7 25	8 2	9
10	T	0 8	12 9	10 18	11 10	10 4	10 56	8 8	8 44	10
11	F	1 1	12 58	11 12	———	10 59	11 56	8 55	9 32	11
12	S	1 48	1 49	0 9	12 10	11 57	———	9 47	10 26	12
13	S	2 48	2 50	1 9	1 11	0 56	12 58	10 43	11 27	13
14	M	3 45	3 49	2 11	2 15	1 56	2 0	11 50	———	14
15	T	4 42	4 52	3 10	3 20	2 51	3 1	0 35	1 7	15
16	W	5 41	5 53	4 8	4 20	3 40	3 52	1 44	2 27	16
17	T	6 34	6 55	4 57	5 18	4 18	4 39	2 52	3 43	17
18	F	7 36	7 57	5 50	6 11	5 7	5 23	3 51	4 47	18
19	S	8 28	8 52	6 36	7 0	5 57	6 21	4 43	5 36	19
20	S	9 10	9 38	7 18	7 46	6 39	7 7	5 31	6 24	20
21	M	9 52	10 22	7 58	8 28	7 29	7 59	6 9	6 59	21
22	T	10 28	11 2	8 34	9 8	8 15	8 49	6 45	7 31	22
23	W	11 4	11 43	9 11	9 50	8 55	9 34	7 20	7 55	23
24	T	11 36	———	9 43	10 31	9 27	10 15	7 54	8 27	24
25	F	0 24	12 2	10 11	11 15	9 57	11 1	8 20	8 53	25
26	S	1 6	12 23	10 37	11 47	10 24	11 34	8 52	9 26	26
27	S	1 44	12 46	11 7	———	10 54	———	9 28	10 5	27
28	M	2 28	1 31	0 54	12 00	0 39	12 00	10 9	10 48	28

Compared with **NEW HAVEN,** High Water at **Sachem's Head** is 16 minutes earlier.

Bridgeport, 4 minutes later.

Sheffield Island, 16 minutes later.

Compared with **NEW LONDON,** (Light-House), High Water at **Navy Yard Site** is 22 minutes later.

Norwich, 45 minutes later.

Little Gull Island, 11 minutes later.

Saybrook, 1 hour later.

High Water is 7 minutes earlier at **Watch Hill** than at **Stonington.**

High Water is 1 hour later at **Montauk Pt** than at **Block Island.**

Greatest High Tide—at New Haven, 8th, A. M., 6.5 ft. above level of average low water. New London, 17th, A. M., 2.9 ft.

Smallest High Tide—at New Haven, 28th, P.M., 5.0 ft.; at New London, 28th, A. M., 1.7 ft.

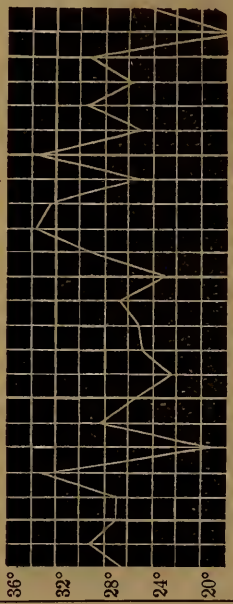
See General Tide Table.

METEOROLOGICAL RECORD.

AVERAGE.

D M	Bar.	Tem	Rel Hu
1			
2	30.07	26° .5	77.0
3			
4	30.07	26 .6	77.0
5			
6	30.07	26 .8	76.9
7			
8	30.07	27 .0	76 8
9			
10	30.06	27 .2	76.7
11			
12	30.06	27 .4	76.7
13			
14	30.06	27 .7	76.6
15			
16	30.06	28 .0	76.4
17			
18	30.05	28 .4	76.2
19			
20	30.05	28 .8	76.0
21			
22	30.04	29 .2	75.8
23			
24	30.04	29 .7	75.6
25			
26	30.03	30 .2	75.2
27			
28	30.03	30 .8	74.8

Comparative Temperature.



Prevailing wind, N. W. by N.

Dry wind, N. W.

Wet wind, S.

Probable amount of rain, 4.1 in.

Greatest amount of rain in the last twenty-four years (Middletown), 7.0.

Least amount of rain in the last twenty-four years (Middletown), 1.3.

Probable highest temperature, 54°.

Probable lowest temperature, 2°.

Highest observed temperature, 68°.

Lowest observed temperature, 16°.

New London: wet wind, E, dry wind, W.

Comparative Rainfall.



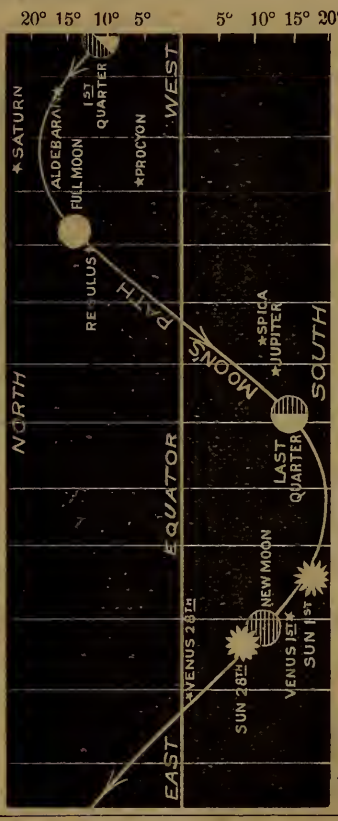
Church Days, Holidays, etc.	d.
Purification Virgin Mary	2
Septuagesima Sunday	6
Sexagesima Sunday	13
St. Valentine's	14
Quinquagesima Sunday	20
Washington's Birthday	22
Ash Wednesday	23
St. Matthias	24
1st Sunday in Lent	27

Moon's Phases, etc.				
First Quarter	1d	3h	27m	morn.
Full Moon	8	5	14	morn.
Last Quarter	14	8	32	eve.
New Moon	22	4	40	aft.
Perigee	9	7	—	morn.
Apogee	24	1	—	aft.

In Eastern Time—that of the 75th Meridian west from Greenwich.

D. M.	D. W.	The Sun. Rises	The Sun. Sets	The Moon. Rises	The Moon. Sets
		h. m.	h. m.	Morn. h. m.	Morn. h. m.
1	Tu	7 3	5 8	11 25	0 24
2	W	7 2	5 9	aft.	1 22
3	Th	7 1	5 10	12 41	2 22
4	Fri	7 0	5 12	1 29	3 23
5	Sat	6 59	5 13	2 25	4 23
6	S	6 58	5 14	3 28	5 18
7	M	6 57	5 15	4 37	6 13
8	Tu	6 56	5 17	5 51	6 59
9	W	6 54	5 18	7 5	7 42
10	Th	6 53	5 19	8 19	8 21
11	Fri	6 52	5 20	9 30	8 58
12	Sat	6 51	5 22	10 42	9 33
13	S	6 49	5 23	11 50	10 9
14	M	6 48	5 24	morn	10 46
15	Tu	6 47	5 25	0 56	11 27
16	W	6 45	5 27	1 59	aft.
17	Th	6 44	5 28	2 57	12 57
18	Fri	6 43	5 29	3 49	1 48
19	Sat	6 41	5 30	4 36	2 41
20	S	6 40	5 31	5 18	3 37
21	M	6 38	5 33	5 57	4 33
22	Tu	6 37	5 34	6 30	5 29
23	W	6 35	5 35	7 1	6 27
24	Th	6 34	5 36	7 30	7 23
25	Fri	6 33	5 37	7 59	8 19
26	Sat	6 31	5 39	8 26	9 17
27	S	6 29	5 40	8 54	10 14
28	M	6 28	5 41	9 25	11 12

Moon's Path among the Constellations.



The Sun.

At the Beginning of this Month:

Day breaks 5.20.

Twilight ends 6.51.

Length of day, 10h. 5m.

Sun on noon mark, 12.6 (see page 4).

Sun is 17° S. of Equator: it rises 22° south of E., and sets 22° south of W.

During the Month:

The sun moves from the constellation Capricornus into Aquarius, as shown in the map.

It is 9° further north the 28th than on the 1st.

The days grow 68 min. longer, the mornings increasing 35 min., the afternoons 33.

The Moon.

New Moon may be first seen the 23d: it sets then 6.27 P. M., 9° south of west.

The *best moonlight evenings* are between the 1st and 10th. (See also p. 12.)

The map shows that the moon is *furthest north* the 5th; and *furthest south* the 18th.

Also, that the moon passes north of Aldebaran the 3d; south of Saturn the 6th; south of Regulus the 8th. Moon is eclipsed Feb. 8: see p. 13.

Astronomical Notes.

The evening stars this month are **Saturn, Venus** and **Mars;** the latter are close together through the month: February 9 Venus, traveling eastward, passes ½° south of Mars. In the early evening sky of the 23d the crescent moon will appear just below these planets: and the rarely-seen planet **Mercury** will also be visible about ¾ degrees above Mars, which will probably be much less conspicuous than Mercury. A field-glass will be needed to give a satisfactory view, and the horizon must be clear. The other evening star, and the most conspicuous by far, is Saturn, which rises E. N. E. before sunset. February 6, 5 A. M., Saturn is 4 minutes north of the third magnitude star Delta in Gemini, and the unassisted eye will hardly be able to separate the planet and star. During this month **Orion** appears east from the meridian after twilight ends; the bright star **Capella** is east from overhead; southwest from it appear the **Pleiades, Hyades** and **Aldebaran,** all in Taurus **Sirius,** the brightest fixed star in the sky, is southeast of Orion, and crosses the meridian shortly before 10 o'clock on the evening of February 1. **Procyon,** in the Little Dog, is northeast from Sirius and comes to the meridian 53 minutes later; and at the same time the two bright stars **Castor** and **Pollux** in the constellation **Gemini** are south. The finest constellation in the eastern sky this month is **Leo** the Lion, containing the bright star **Regulus** in the handle of the well known "sickle" group. Regulus rises Feb. 1 at half-past six, and Feb. 14 at sunset.

HIGH TIDE 1887 MARCH

D. M.	D. W.	New Haven. A. M.	New Haven. P. M.	New London. A. M.	New London. P. M.	Stonington. A. M.	Stonington. P. M.	Block Island. A. M.	Block Island. P. M.	D. M.
1	T	3 24	2 45	1 50	1 11	1 35	12 56	11 5	11 53	1
2	W	4 20	4 6	2 48	2 34	2 29	2 15	———	12 13	2
3	T	5 16	5 19	3 43	3 46	3 15	3 18	0 56	1 29	3
4	F	6 12	6 26	4 35	4 49	3 56	4 10	2 2	2 47	4
5	S	7 10	7 32	5 24	5 46	4 41	5 3	3 3	3 52	5
6	S	8 3	8 27	6 11	6 35	5 32	5 56	3 58	4 48	6
7	M	8 50	9 18	6 56	7 24	6 27	6 55	4 46	5 34	7
8	T	9 34	10 7	7 40	8 13	7 11	7 44	5 39	6 23	8
9	W	10 20	10 57	8 26	9 3	8 7	8 44	6 27	7 3	9
10	T	11 7	11 48	9 13	9 54	8 54	9 35	7 16	7 51	10
11	F	11 54	———	10 1	10 47	9 45	10 31	7 59	8 33	11
12	S	0 40	12 42	10 51	11 42	10 37	11 28	8 43	9 15	12
13	S	1 33	1 33	11 47	———	11 34	———	9 31	10 2	13
14	M	2 19	2 26	0 40	12 47	0 27	12 34	10 26	10 55	14
15	T	3 15	3 25	1 41	1 51	1 26	1 36	11 32	———	15
16	W	4 14	4 28	2 42	2 56	2 23	2 37	0 6	12 47	16
17	T	5 15	5 33	3 42	4 0	3 14	3 32	1 12	2 5	17
18	F	6 14	6 35	4 37	4 58	3 58	4 19	2 19	3 22	18
19	S	7 5	7 28	5 28	5 51	4 49	5 12	3 19	4 24	19
20	S	8 1	8 24	6 15	6 38	5 32	5 55	4 15	5 17	20
21	M	8 48	9 11	6 56	7 19	6 17	6 40	5 3	6 0	21
22	T	9 29	9 54	7 35	8 0	7 6	7 31	5 44	6 29	22
23	W	10 5	10 31	8 11	8 37	7 42	8 8	6 27	7 2	23
24	T	10 36	11 9	8 42	9 15	8 23	8 56	6 57	7 28	24
25	F	11 3	11 45	9 10	9 52	8 54	9 36	7 24	7 54	25
26	S	11 28	11 59	9 35	10 30	9 19	10 14	7 57	8 26	26
27	S	11 53	———	10 2	11 14	9 48	11 0	8 25	8 54	27
28	M	1 5	12 25	10 39	11 47	10 26	11 51	9 0	9 31	28
29	T	1 43	1 11	11 32	———	11 19	———	9 44	10 16	29
30	W	2 36	2 23	1 2	12 49	0 47	12 34	10 42	11 11	30
31	T	3 39	3 46	2 5	2 12	1 50	1 57	11 41	———	31

Compared with **NEW HAVEN,** High Water at **Sachem's Head** is 16 minutes earlier. **Bridgeport,** 4 minutes later. **Sheffield Island,** 16 minutes later.

Compared with **NEW LONDON,** (Light-House), High Water at **Navy Yard Site** is 22 minutes later. **Norwich,** 45 minutes later. **Little Gull Island,** 11 minutes later. **Saybrook,** 1 hour later.

High Water is 7 minutes earlier at **Watch Hill** than at **Stonington.**

High Water is 1 hour later at **Montauk Pt.** than at **Block Island.**

Greatest High Tide—at New Haven, 9th, P. M., 6 7 ft. above level of average low water. New London, 10th, P. M., 3.0 ft

Smallest High Tide—at New Haven, 1st, P. M., 5.0 ft.; at New London, 1st, P. M., 1 7 ft.

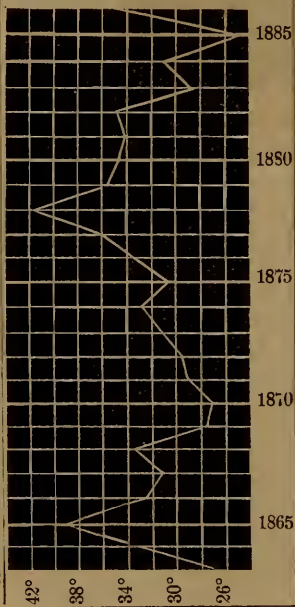
See General Tide Table.

METEOROLOGICAL RECORD.

AVERAGE.

D M	Bar.	Tem	Rel Hu
1			
2	30.03	31° .4	74.4
3			
4	30.02	32 .0	74.
5			
6	30.02	32 .6	73.0
7			
8	30.01	33 .2	73.6
9			
10	30.01	33 .9	73.4
11			
12	30.00	34 .6	73.4
13			
14	30.00	35 .3	73.2
15			
16	29.99	36 .0	73.2
17			
18	29.99	36 .7	72.9
19			
20	29.99	37 .4	72 6
21			
22	29.98	38 .2	72.3
23			
24	29.98	38 .9	72.
25			
26	29.97	39 .6	71.8
27			
28	29.97	40 .4	71.5
29			
30	29.97	41 .1	71.2
31			

Comparative Temperature.



Prevailing wind, N. W. by N.

Dry wind, W.

Wet wind, S. E.

Probable am't of rain, 5.9 in.

Greatest am't of rain in the last 24 years (Middletown), 11.7 in.

Least am't of rain in the last 24 years (Middletown), 1.8 in.

Probable highest temperature, 59°.

Probable lowest temperature, 13°.

The highest observed temperature, 76°.

The lowest observed temperature, 9°.

Comparative Rainfall.



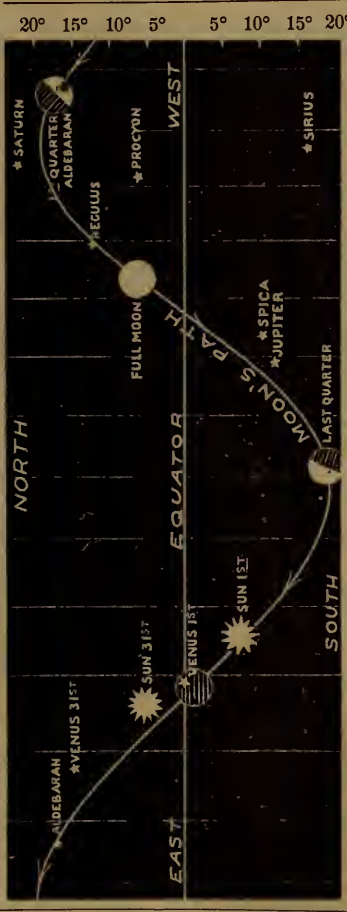
Church Days, Holidays, etc.	d.
2d Sunday in Lent	6
3d Sunday in Lent	13
St. Patrick's	17
4th Sunday in Lent	20
Annunciation Virgin Mary	25
5th Sunday in Lent	27

Moon's Phases, etc.				
First Quarter	2d	8h	8m	eve.
Full Moon	9	3	34	aft.
Last Quarter	16	8	42	morn.
New Moon	24	11	10	morn.
Perigee	9	7	—	eve.
Apogee	23	2	—	aft.

In Eastern Time—that of the 75th Meridian west from Greenwich.

D. M.	D. W.	The Sun. Rises	Sets	The Moon. Rises	Sets
		h. m.	h. m.	Morn. h. m.	Morn. h. m.
1	Tu	6 26	5 42	9 58	morn
2	W	6 25	5 43	10 36	0 11
3	Th	6 23	5 44	11 19	1 10
4	Fri	6 22	5 46	aft.	2 9
5	Sat	6 20	5 47	1 6	3 5
6	S	6 18	5 48	2 11	3 58
7	M	6 17	5 49	3 22	4 46
8	Tu	6 15	5 50	4 35	5 30
9	W	6 13	5 51	5 50	6 12
10	Th	6 12	5 52	7 6	6 51
11	Fri	6 10	5 54	8 19	7 27
12	Sat	6 8	5 55	9 32	8 5
13	S	6 7	5 56	10 42	8 43
14	M	6 5	5 57	11 48	9 23
15	Tu	6 4	5 58	morn	10 6
16	W	6 2	5 59	0 49	10 54
17	Th	6 0	6 0	1 44	11 44
18	Fri	5 58	6 1	2 34	aft.
19	Sat	5 57	6 2	3 19	1 31
20	S	5 55	6 3	3 57	2 28
21	M	5 53	6 4	4 31	3 24
22	Tu	5 52	6 6	5 4	4 21
23	W	5 50	6 7	5 32	5 18
24	Th	5 48	6 8	6 1	6 14
25	Fri	5 47	6 9	6 28	7 12
26	Sat	5 45	6 10	6 57	8 9
27	S	5 43	6 11	7 26	9 6
28	M	5 42	6 12	7 58	10 5
29	Tu	5 40	6 13	8 34	11 3
30	W	5 38	6 14	9 14	morn
31	Th	5 37	6 15	10 1	0 1

Moon's Path among the Constellations.



The Sun.

At the Beginning of this Month:

Day breaks 4.41.

Twilight ends 7.27.

Length of day, 11h 16m.

Sun on noon mark, 12.4 (see page 4).

Sun is 8° S. of Equator: it rises 9° south of E., and sets 9° south of W.

During the Month:

The sun moves from the constellation Aquarius into Pisces, as shown by the map.

It "crosses the line," *i. e.*, the equator, the 20th, and it is 12° further north on the 31st than on the 1st.

The days grow 82 minutes longer, the mornings increasing 49 min., the afternoons 33 min.

The Moon.

New Moon may be first seen the 25th; it sets then 7.12 P. M., 6° N. of W.

The *best moonlight evenings* are between the 2d and 11th (see also p. 12).

The map shows that the moon is furthest north the 4th, and furthest south the 17th.

Also, that the moon passes north of Aldebaran the 2d; south of Regulus the 8th; north of Spica the 11th; south of Venus the 26th; north of Aldebaran the 29th.

Astronomical Notes.

At the beginning of this month **Saturn, Venus, Mercury** and **Mars** are evening stars. Mars is invisible except in the telescope. Amateur astronomers should improve the unusually favorable opportunity afforded this month for studying the planets Mercury and Venus: March 1 they set about 1½ hours after the Sun, and Mercury is then 4 degrees due west from Venus: this distance then slowly increases, but Mercury will be visible for nearly two weeks. At the end of twilight March 1, **Taurus** appears well up in the western sky, **Capella** is west of the zenith: **Orion** has just passed the meridian; **Sirius** is nearly south, and **Procyon** northeast of it; the planet **Saturn,** and the bright stars **Castor** and **Pollux** in Gemini are east of the meridian; and succeeding Gemini eastward appear in order the "Beehive" cluster in **Cancer, Leo,** with Regulus and the "sickle" group, and lastly **Virgo** just rising. The brilliant planet **Jupiter,** still ranked as morning star, rises in Virgo at the close of the month at about the end of twilight. **Aldebaran** in Taurus is occulted by the moon about 7.46–8.53 P. M., March 29. The path of the moon is very close to this star during 1887.

HIGH TIDE 1887 APRIL

D. M.	D. W.	New Haven. A. M.	New Haven. P. M.	New London. A. M.	New London. P. M.	Stonington. A. M.	Stonington. P. M.	Block Island. A. M.	Block Island. P. M.	D. M.
1	F	4 40	4 57	3 8	3 25	2 49	3 6	0 14	12 57	1
2	S	5 39	6 1	4 6	4 27	3 38	3 59	1 22	2 16	2
3	S	6 37	7 2	5 0	5 25	4 21	4 46	2 32	3 29	3
4	M	7 35	8 2	5 49	6 16	5 6	5 33	3 35	4 28	4
5	T	8 31	8 58	6 39	7 6	6 0	6 27	4 33	5 18	5
6	W	9 20	9 49	7 26	7 55	6 57	7 26	5 24	6 2	6
7	T	10 5	10 36	8 11	8 42	7 52	8 23	6 11	5 46	7
8	F	10 50	11 25	8 56	9 31	8 37	9 12	7 2	7 33	8
9	S	11 36	———	9 43	10 21	9 27	10 5	7 45	8 14	9
10	S	0 14	12 23	10 32	11 14	10 18	11 0	8 28	8 54	10
11	M	1 5	1 11	11 25	———	11 12	11 57	9 16	9 39	11
12	T	1 49	2 5	0 10	12 26	———	12 13	10 9	10 29	12
13	W	2 43	3 4	1 9	1 30	0 54	1 1[illegible]	11 13	12 27	13
14	T	3 45	4 9	2 11	2 35	1 56	2 20	———	12 15	14
15	F	4 44	5 9	3 12	3 37	2 53	3 18	0 31	1 31	15
16	S	5 43	6 7	4 10	4 34	3 42	4 6	1 38	2 47	16
17	S	6 40	7 2	5 3	5 25	4 24	4 46	2 44	3 55	17
18	M	7 36	7 57	5 50	6 11	5 7	5 28	3 41	4 46	18
19	T	8 16	8 37	6 30	6 51	5 47	6 8	4 40	5 26	19
20	W	8 58	9 22	7 6	7 30	6 27	6 51	5 24	5 59	20
21	T	9 34	9 59	7 40	8 5	7 11	7 36	5 56	6 27	21
22	F	10 5	10 34	8 11	8 40	7 42	8 11	6 33	6 59	22
23	S	10 34	11 9	8 40	8 15	8 21	8 56	7 1	7 25	23
24	S	11 0	11 44	9 7	9 51	8 51	9 35	7 30	7 54	24
25	M	11 33	———	9 42	10 30	9 28	10 16	8 0	8 24	25
26	T	0 21	12 12	10 26	11 19	10 13	11 6	8 38	9 1	26
27	W	1 5	1 10	11 24	———	11 11	———	9 24	9 40	27
28	T	1 57	2 14	0 18	12 35	0 5	12 22	10 16	10 35	28
29	F	2 59	3 29	1 25	1 55	1 10	1 40	11 21	11 41	29
30	S	4 5	4 38	2 33	3 6	2 14	2 47	———	12 35	30

Compared with **NEW HAVEN**, High Water at **Sachem's Head** is 16 minutes earlier.

Bridgeport, 4 minutes later.

Sheffield Island, 16 minutes later.

Compared with **NEW LONDON**, (Light-House), High Water at **Navy Yard Site** is 22 minutes later.

Norwich, 45 minutes later.

Little Gull Island, 11 minutes later.

Saybrook, 1 hour later.

High Water is 7 minutes earlier at **Watch Hill** than at **Stonington.**

High Water is 1 hour later at **Montauk Pt.** than at **Block Island.**

Greatest High Tide—at New Haven, 7th, P. M., 6.8 ft. above level of average low water. New London, 7th, P. M., 3.1 ft.

Smallest High Tide—at New Haven, 1st, P. M., 5.3 ft.; at New London, 26th, A. M., 2.0 ft.

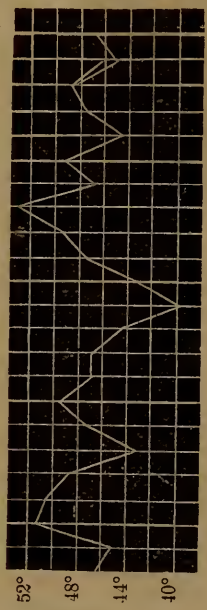
See General Tide Table.

METEOROLOGICAL RECORD.

AVERAGE.

D M	Bar.	Tem	Rel Hu
1			
2	29.97	42° .1	70.7
3			
4	29.96	42 .9	70.4
5			
6	29.96	43 .6	70.1
7			
8	29.96	44 .3	69.8
9			
10	29.96	45 .0	69.5
11			
12	29.96	45 .7	69.2
13			
14	29.95	46 .4	68.9
15			
16	29 95	47 .1	68.7
17			
18	29.95	47 .8	68.5
19			
20	29.95	48 .4	68.3
21			
22	29.95	49 .1	68.1
23			
24	29.96	49 .7	67.9
25			
26	29.96	50 .4	67.6
27			
28	29.96	51 .1	67.5
29			
30	29.96	51 .8	67.3

Comparative Temperature.



Prevailing wind, N. N.-W.

Dry wind, N.

Wet wind, S.-E.

Probable amount of rain, 5.2 in.

Greatest amount of rain observed in the last 24 years (Middletown), 7.3 in.

Least amount of rain observed in the last 24 years (Middletown), 1.5 in.

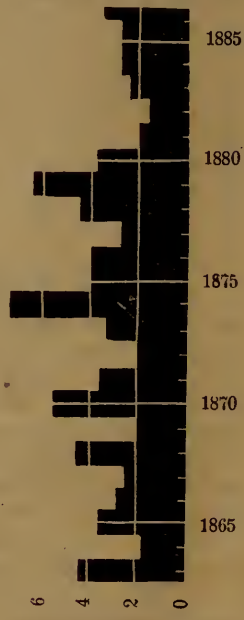
Probable highest temperature, 69°.

Probable lowest temperature, 26°.

Highest temperature observed, 85°.

Lowest temperature observed, 11°.

Comparative Rainfall.



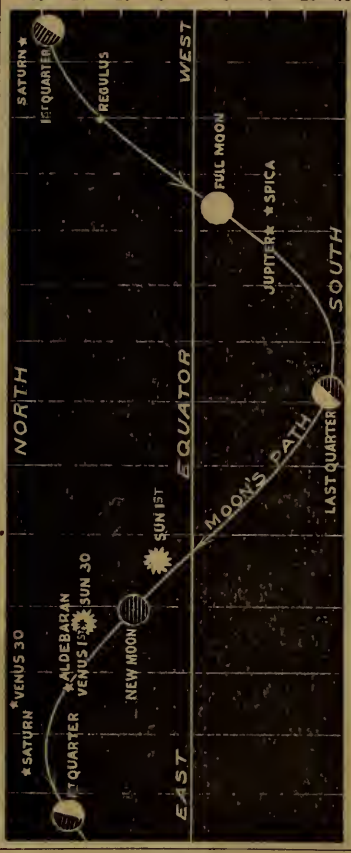
Church Days, Holidays, etc.	d.
Sunday before Easter	3
Good Friday	8
Easter	10
1st Sunday after Easter	17
2d Sunday after Easter	24
St. Mark	25

Moon's Phases, etc.				
First Quarter	1d	8h	53m	morn.
Full Moon	8	0	39	morn.
Last Quarter	14	11	4	eve.
New Moon	23	3	53	morn.
First Quarter	30	6	0	eve.
Perigee	7	7	—	morn.
Apogee	19	10	—	eve.

In Eastern Time—that of the 75th Meridian west from Greenwich.

D. M.	D. W.	The Sun. Rises h. m.	The Sun. Sets h. m.	The Moon. Rises Morn. h. m.	The Moon. Sets Morn. h. m.
1	Fri	5 35	6 16	10 54	0 56
2	Sat	5 33	6 17	11 54	1 49
3	S	5 32	6 18	aft.	2 37
4	M	5 30	6 20	2 9	3 21
5	Tu	5 28	6 21	3 22	4 3
6	W	5 27	6 22	4 37	4 42
7	Th	5 25	6 23	5 51	5 20
8	Fri	5 23	6 24	7 6	5 56
9	Sat	5 22	6 25	8 19	6 34
10	S	5 20	6 26	9 29	7 14
11	M	5 18	6 27	10 35	7 57
12	Tu	5 17	6 28	11 36	8 44
13	W	5 15	6 29	morn	9 35
14	Th	5 14	6 30	0 29	10 29
15	Fri	5 12	6 31	1 16	11 24
16	Sat	5 11	6 32	1 58	aft.
17	S	5 9	6 33	2 34	1 17
18	M	5 8	6 34	3 6	2 14
19	Tu	5 6	6 36	3 37	3 11
20	W	5 5	6 37	4 4	4 7
21	Th	5 3	6 38	4 32	5 5
22	Fri	5 2	6 39	4 59	6 2
23	Sat	5 0	6 40	5 29	7 0
24	S	4 59	6 41	6 0	7 59
25	M	4 57	6 42	6 34	8 58
26	Tu	4 56	6 43	7 13	9 57
27	W	4 54	6 44	7 57	10 53
28	Th	4 53	6 45	8 49	11 46
29	Fri	4 52	6 46	9 45	morn
30	Sat	4 50	6 47	10 47	0 35

Moon's Path among the Constellations.



The Sun.

At the Beginning of this Month:

Day breaks at 3.42.
Twilight ends, 8.9.
Length of day, 12h. 41m.
Sun on noon mark, 11.56 (see p. 4).
Sun is 5° N. of equator: it rises 7° N. of E., and sets 7° N. of W.

During the Month:

The sun moves from the constellation Pisces into Aries, as shown by the map.
It is 10° further north on the 30th than on the 1st.
The days grow 76 minutes longer, the mornings increasing 45 min., the afternoons 31 min.

The Moon.

New Moon may be first seen the 24th: it sets then 7.59 P. M., 18° N. of W.
The *best moonlight evenings* are between the 1st and 9th: see also p. 12.
The map shows that the moon runs *furthest north* the 1st and 28th, and *furthest south* the 13th.
Also, that the moon passes south of Regulus the 4th; north of Spica the 8th; north of Jupiter the 8th; south of Aldebaran the 26th; south of Saturn the 29th.

Astronomical Notes.

Venus as evening star is gradually increasing in brilliancy: it sets April 1 north of the west point of the horizon, nearly 2½ hours after the sun: this interval increases to three hours by the close of the month. The brilliant **Jupiter** is termed evening star after April 21, when it rises about sunset, nearly in the southeast, and 10 degrees due east from the bright blue Spica in Virgo. When the full moon rises April 8, Jupiter will appear close below it. In the evening sky of April, the brightest fixed star is **Sirius,** which during the early part of the month sets west of southwest at half-past 10 o'clock; at nearly the same time **Orion** is setting just west, and **Taurus** further north; northeast from Taurus is **Capella.** April 1 the planet **Saturn,** the bright star **Procyon** in the Little Dog, and **Castor** and **Pollux** in Gemini, are nearly south at sunset; as twilight fades, the "Beehive" in **Cancer** will be seen high up on the meridian; east from it shines **Regulus** in **Leo;** the bright-red star **Arcturus** is well up in the E. N. E.; and finally, low down in the southeast are **Jupiter** and **Spica** in Virgo. Jupiter being nearest to the earth this month, its moons will be most easily seen, and the following dates are suggested as the most favorable for observation with an opera or field-glass: April 2, 5, 9, 14, 20, 21, 28 and 30.

D. M.	D. W.	New Haven. A. M.	New Haven. P. M.	New London. A. M.	New London. P. M.	Stonington. A. M.	Stonington. P. M.	Block Island. A. M.	Block Island. P. M.	D. M.
1	S	5 9	5 43	3 36	4 10	3 8	3 42	0 54	1 49	1
2	M	6 15	6 43	4 38	5 6	3 59	4 27	2 6	3 0	2
3	T	7 16	7 45	5 30	5 59	4 47	5 16	3 17	4 3	3
4	W	8 11	8 40	6 19	6 48	5 40	6 9	4 16	4 57	4
5	T	9 0	9 29	7 6	7 35	6 37	7 6	5 8	5 43	5
6	F	9 46	10 15	7 52	8 21	7 33	8 2	5 56	6 26	6
7	S	10 33	11 2	8 39	9 8	8 20	8 49	6 48	7 14	7
8	S	11 20	11 50	9 26	9 56	9 7	9 37	7 38	8 0	8
9	M	———	12 9	10 16	10 45	10 0	10 29	8 21	8 39	9
10	T	0 38	1 0	11 9	11 39	10 55	11 25	9 3	9 18	10
11	W	1 30	1 50	———	12 4	11 51	———	9 51	10 1	11
12	T	2 13	2 44	0 34	1 5	0 21	12 52	10 45	10 49	12
13	F	3 9	3 45	1 35	2 11	1 20	1 56	11 49	11 55	13
14	S	4 9	4 43	2 37	3 11	2 18	2 52	———	12 58	14
15	S	5 9	5 41	3 36	4 8	3 8	3 40	0 57	2 9	15
16	M	6 2	6 31	4 29	4 58	4 1	4 30	1 59	3 2	16
17	T	6 52	7 19	5 15	5 42	4 36	5 3	3 8	3 59	17
18	W	7 42	8 7	5 56	6 21	5 13	5 38	4 4	4 45	18
19	T	8 18	8 44	6 32	6 58	5 49	6 15	4 52	5 24	19
20	F	8 58	9 25	7 6	7 33	6 27	6 54	5 30	5 55	20
21	S	9 34	10 1	7 40	8 7	7 9	7 38	6 3	6 23	21
22	S	10 6	10 35	8 12	8 41	7 53	8 22	6 33	6 53	22
23	M	10 43	11 11	8 49	9 17	8 30	8 58	7 12	7 29	23
24	T	11 22	11 51	9 29	9 58	9 13	9 42	7 46	8 2	24
25	W	———	12 8	10 17	10 46	10 3	10 32	8 22	8 33	25
26	T	0 37	1 5	11 19	11 44	11 6	11 31	9 8	9 21	26
27	F	1 30	2 10	———	12 31	———	12 18	10 0	10 10	27
28	S	2 24	3 16	0 50	1 42	0 35	1 27	11 3	11 23	28
29	S	3 34	4 22	2 2	2 50	1 43	2 31	———	12 10	29
30	M	4 43	5 24	3 10	3 51	2 42	3 23	0 34	1 22	30
31	T	5 46	6 24	4 9	4 47	3 50	4 8	1 46	2 35	31

Compared with **NEW HAVEN,** High Water at **Sachem's Head** is 16 minutes earlier. **Bridgeport,** 4 minutes later. **Sheffield Island,** 16 minutes later.

Compared with **NEW LONDON,** (Light-House), High Water at **Navy Yard Site** is 22 minutes later. **Norwich,** 45 minutes later. **Little Gull Island,** 11 minutes later. **Saybrook,** 1 hour later

High Water is 7 minutes earlier at **Watch Hill** than at **Stonington.**

High Water is 1 hour later at **Montauk Pt.** than at **Block Island.**

Greatest High Tide—at New Haven, 6th, P. M., 6.9 ft. above level of average low water. New London, 6th, P. M., 3.2 ft.

Smallest High Tide—at New Haven, 15th, A.M., 5.2 ft.; at New London, 24th, 2.1 ft.

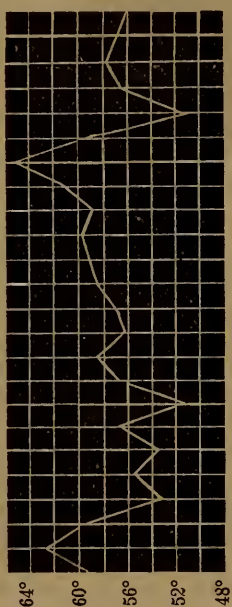
See General Tide Table.

METEOROLOGICAL RECORD.

AVERAGE.

D M	Bar.	Tem	Rel Hu
1			
2	29.96	52°.5	67.1
3			
4	29.96	53 .1	66.9
5			
6	29.96	53 .8	66.7
7			
8	29.96	54 .5	66.6
9			
10	29.96	55 .2	66.6
11			
12	29.97	55 .9	66.5
13			
14	29.97	56 .6	66.4
15			
16	29.97	57 .3	66.3
17			
18	29.97	58 .0	66.3
19			
20	29.97	58 .7	66.3
21			
22	29.97	59 .4	66.3
23			
24	29.98	60 .1	66.3
25			
26	29.98	60 8	66.4
27			
28	29.98	61 .4	66.4
29			
30	29.98	62 .1	66.5
31			

Comparative Temperature.



Prevailing wind, S. W.

Dry wind, N. W.

Wet wind, East or calms.

Probable amount of rain, 3.4 in.

Greatest amount of rain in the last twenty-four years (Middletown), 6.82 in.

Least amount of rain in the last twenty-four years (Middletown), 0.7 in.

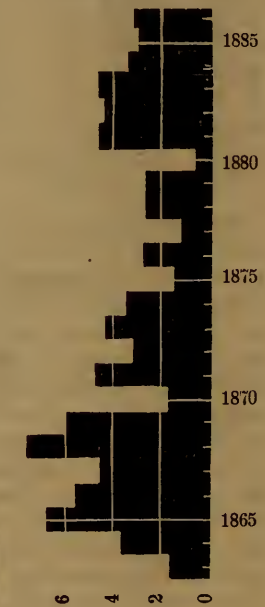
Probable highest temperature, 82°.

Probable lowest temperature, 32°.

Highest observed temperature, 94°.

Lowest observed temperature, 27°.

Comparative Rainfall.



Church Days, Holidays, etc.	d.
St. Philip and St. James	1
4th Sunday after Easter	8
Rogation Sunday	15
Ascension Day	19
Sunday after Ascension Day	22
Whitsun-Day	29
Memorial Day	30

Moon's Phases, etc.				
Full moon	7d	9h	2m	morn.
Last Quarter	14	3	18	aft.
New Moon	22	6	6	eve.
First Quarter	30	0	20	morn.
Perigee	5	1	—	aft.
Apogee	17	1	—	aft.

In Eastern Time—that of the 75th Meridian west from Greenwich.

D. M.	D. W.	The Sun. Rises h. m.	The Sun. Sets h. m.	The Moon. Rises Morn. h. m.	The Moon. Sets Morn. h. m.
1	S	4 49	6 48	11 54	1 19
2	M	4 48	6 49	aft.	2 0
3	Tu	4 47	6 50	2 15	2 38
4	W	4 45	6 51	3 27	3 15
5	Th	4 44	6 53	4 40	3 50
6	Fri	4 43	6 54	5 53	4 26
7	Sat	4 42	6 55	7 6	5 5
8	S	4 40	6 56	8 15	5 46
9	M	4 39	6 57	9 20	6 32
10	Tu	4 38	6 58	10 19	7 22
11	W	4 37	6 59	11 11	8 16
12	Th	4 36	7 0	11 55	9 12
13	Fri	4 35	7 1	morn	10 9
14	Sat	4 34	7 2	0 34	11 8
15	S	4 33	7 3	1 8	aft.
16	M	4 32	7 4	1 39	1 3
17	Tu	4 31	7 5	2 8	1 59
18	W	4 30	7 6	2 36	2 56
19	Th	4 29	7 7	3 3	3 54
20	Fri	4 28	7 8	3 31	4 52
21	Sat	4 28	7 9	4 1	5 51
22	S	4 27	7 9	4 35	6 50
23	M	4 26	7 10	5 12	7 50
24	Tu	4 25	7 11	5 54	8 49
25	W	4 25	7 12	6 44	9 44
26	Th	4 24	7 13	7 39	10 35
27	Fri	4 23	7 14	8 41	11 21
28	Sat	4 23	7 15	9 45	morn
29	S	4 22	7 16	10 53	0 2
30	M	4 22	7 16	aft.	0 40
31	Tu	4 21	7 17	1 12	1 16

Moon's Path among the Constellations.



The Sun.

At the Beginning of this Month:

Day breaks at 2.49.

Twilight ends, 8.48.

Length of day, 13h. 59m.

Sun on noon mark, 11.49 (see p. 4).

Sun is 15° N. of Equator; it rises 21° N. of E., and sets 21° N. of W.

During the Month:

The sun moves from the constellation Aries into Taurus, as shown by the map.

It is 7° further north on the 31st than on the 1st.

The days grow 57 minutes longer, the mornings increasing 28 min., the afternoons 29 min.

The Moon.

New Moon may be first seen the 24th: it sets then 8.49 P. M., 27° N. of W.

The *best moonlight evenings* are between the 1st and 8th: see also p. 12.

The map shows that the moon runs *furthest south* the 11th and *furthest north* the 25th.

Also, that the moon passes over Regulus the 2d; north of Spica the 5th; north of Jupiter the 6th; over Regulus the 29th.

Astronomical Notes.

Venus, Jupiter and **Saturn** are brilliant evening stars. Venus through May sets more than three hours after the sun, and steadily approaches Saturn, passing 2¼ degrees north of it May 30. A small telescope will show the gibbous form of Venus, and the rings of Saturn. Jupiter rises before sunset, and is a few degrees east from Spica in Virgo. The aspect of the heavens has changed much since March, as most of the brilliant winter constellations set early in the evening during the month of May. **Sirius** (in Canis Major), **Orion,** and **Taurus,** on the first of the month set shortly after the end of twilight, and **Capella** is not far above the northwestern horizon at that time; **Gemini,** with **Castor** and **Pollux,** is well up in the west; **Leo** and the "Sickle" group are just west of the meridian; the bright blue star in the southeast is **Spica** in the constellation **Virgo;** east from Spica, and near the southeastern horizon, appear two bright stars, 10 degrees apart, in the constellation **Libra;** high up in the east is the bright red star **Arcturus** in **Bootes.** Arcturus is ranked the brightest star in the northern hemisphere.

D. M.	D. W.	New Haven. A. M.	New Haven. P. M.	New London. A. M.	New London. P. M.	Stonington. A. M.	Stonington. P. M.	Block Island. A. M.	Block Island. P. M.	D. M.
1	W	6 41	7 21	5 4	5 44	4 25	5 5	2 55	3 39	1
2	T	7 42	8 14	5 56	6 28	5 23	5 45	4 1	4 38	2
3	F	8 37	9 7	6 45	7 15	6 6	6 36	4 59	5 28	3
4	S	9 27	9 54	7 33	8 0	7 4	7 31	5 48	6 12	4
5	S	10 15	10 40	8 21	8 46	8 2	8 27	6 35	6 53	5
6	M	11 4	11 25	9 10	9 31	8 51	9 12	7 25	7 38	6
7	T	11 52	———	9 59	10 17	9 43	10 1	8 7	8 16	7
8	W	0 10	12 40	10 49	11 6	10 35	10 52	8 48	8 52	8
9	T	0 57	1 37	11 44	11 57	11 31	11 44	9 32	9 33	9
10	F	1 36	2 22	———	12 43	———	12 30	10 21	10 17	10
11	S	2 29	3 23	0 50	1 44	0 42	1 31	11 11	11 11	11
12	S	3 30	4 17	1 56	2 43	1 41	2 28	———	12 6	12
13	M	4 23	5 9	2 51	3 37	2 32	3 18	0 14	1 6	13
14	T	5 17	6 0	3 44	4 27	3 16	3 59	1 16	2 10	14
15	W	6 4	6 43	4 31	5 10	4 3	4 42	2 14	3 3	15
16	T	6 52	7 28	5 15	5 51	4 36	5 12	3 19	3 57	16
17	F	7 42	8 14	5 56	6 28	5 13	5 45	4 12	4 40	17
18	S	8 26	8 56	6 34	7 4	5 55	6 25	4 56	5 16	18
19	S	9 5	9 31	7 13	7 39	6 34	7 0	5 39	5 55	19
20	M	9 47	10 6	7 53	8 14	7 24	7 45	6 15	6 28	20
21	T	10 29	10 46	8 35	8 52	8 16	8 33	6 50	7 2	21
22	W	11 12	11 27	9 19	9 34	9 3	9 18	7 28	7 38	22
23	T	———	12 3	10 12	10 22	9 58	10 8	8 6	8 16	23
24	F	0 13	1 0	11 14	11 19	11 1	11 6	8 52	9 1	24
25	S	1 5	1 58	———	12 19	———	12 6	9 42	9 54	25
26	S	1 58	2 58	0 24	1 24	0 9	1 9	10 40	10 55	26
27	M	3 4	4 1	1 32	2 29	1 13	2 10	11 48	———	27
28	T	4 10	5 2	2 38	3 30	2 19	3 11	0 4	12 52	28
29	W	5 13	5 59	3 40	4 26	3 12	3 58	1 19	2 5	29
30	T	6 15	6 55	4 38	5 18	3 59	4 39	2 36	3 14	30

Compared with **NEW HAVEN**, High Water at **Sachem's Head** is 16 minutes earlier. **Bridgeport**, 4 minutes later. **Sheffield Island**, 16 minutes later.

Compared with **NEW LONDON**, (Light-House), High Water at **Navy Yard Site** is 22 minutes later. **Norwich**, 45 minutes later. **Little Gull Island**, 11 minutes later. **Saybrook**, 1 hour later.

High Water is 7 minutes earlier at **Watch Hill** than at **Stonington.**

High Water is 1 hour later at **Montauk Pt.** than at **Block Island.**

Greatest High Tide—at New Haven, 5th, P. M., 6 8 ft. above level of average low water. New London, 3d, P. M., 3.3 ft.

Smallest High Tide—at New Haven, 14th, A.M., 5.0 ft.; at New London, 15th, A. M., 2.0 ft.

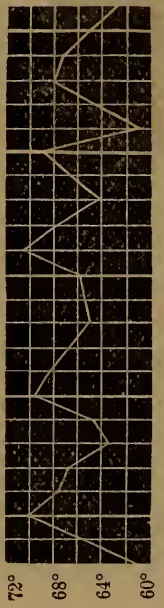
See General Tide Table.

METEOROLOGICAL RECORD.

AVERAGE.

D M	Bar.	Tem	Rel Hu
1			
2	29.98	63° .1	66.6
3			
4	29.98	63 .8	66.7
5			
6	29.98	64 .4	66.7
7			
8	29.98	65 .1	66.8
9			
10	29.98	65 .7	66.9
11			
12	29.98	66 .2	67.
13			
14	29.98	66 .8	67.1
15			
16	29.98	67 .3	67.3
17			
18	29.98	67 .8	67.5
19			
20	29.98	68 .3	67.7
21			
22	29.98	68 .8	67.9
23			
24	29.98	69 .2	68.0
25			
26	29.97	69 .6	68.2
27			
28	29.97	70 .0	68.5
29			
30	29.97	70 .3	68.8

Comparative Temperature.



Prevailing wind, S. W.

Dry wind, N. W.

Wet wind, S. E.

Probable amount of rain, 3.4 in.

Greatest amount of rain in the last twenty-four years (Middletown), 8.0 in.

Least amount of rain in the last twenty-four years (Middletown), 0.5 in.

Probable highest temperature, 88°.

Probable lowest temperature, 46°.

Highest observed temperature, 102°.

Lowest observed temperature, 35°.

Comparative Rainfall.



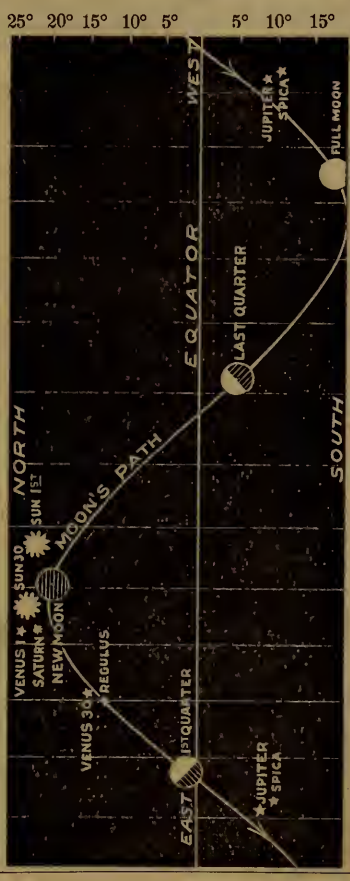
Church Days, Holidays, etc.	d.
Trinity Sunday	5
St. Barnabas	11
1st Sunday after Trinity	12
2d Sunday after Trinity	19
Nativity of St. John Baptist	24
3d Sunday after Trinity	26
St. Peter	29

Moon's Phases, etc.				
Full Moon	5d	5h	38m	aft.
Last Quarter	13	8	35	morn.
New Moon	21	5	53	morn.
First Quarter	28	5	1	morn.
Perigee	2	7	—	morn.
Apogee	14	7	—	morn.
Perigee	28	2	—	morn.

In Eastern Time—that of the 75th Meridian west from Greenwich.

D. M.	D. W.	The Sun. Rises h. m.	The Sun. Sets h. m.	The Moon. Rises Aft. h. m.	The Moon. Sets Morn. h. m.
1	W	4 21	7 18	2 23	1 50
2	Th	4 20	7 19	3 34	2 23
3	Fri	4 20	7 19	4 45	3 0
4	Sat	4 19	7 20	5 55	3 38
5	S	4 19	7 21	7 2	4 20
6	M	4 19	7 21	8 5	5 9
7	Tu	4 19	7 22	9 1	6 1
8	W	4 18	7 23	9 50	6 57
9	Th	4 18	7 23	10 32	7 55
10	Fri	4 18	7 24	11 9	8 53
11	Sat	4 18	7 24	11 41	9 53
12	S	4 18	7 25	morn	10 51
13	M	4 18	7 25	0 11	11 49
14	Tu	4 18	7 26	0 38	aft.
15	W	4 18	7 26	1 6	1 43
16	Th	4 18	7 27	1 38	2 40
17	Fri	4 18	7 27	2 2	3 38
18	Sat	4 18	7 27	2 34	4 38
19	S	4 18	7 28	3 9	5 39
20	M	4 18	7 28	3 50	6 39
21	Tu	4 18	7 28	4 37	7 36
22	W	4 19	7 28	5 31	8 31
23	Th	4 19	7 28	6 31	9 19
24	Fri	4 19	7 29	7 36	10 3
25	Sat	4 19	7 29	8 45	10 42
26	S	4 20	7 29	9 54	11 19
27	M	4 20	7 29	11 4	11 53
28	Tu	4 21	7 29	aft.	morn
29	W	4 21	7 29	1 22	0 28
30	Th	4 21	7 29	2 31	1 3

Moon's Path among the Constellations.



The Sun.

At the Beginning of this Month:

Day breaks at 2.9.
Twilight ends, 9.30.
Length of day, 14h 57m.
Sun on noon mark, 11.49 (see p 4).
Sun is 22° N. of equator: it rises 31° N. of E., and sets 31° N. of W.

During the Month:

The sun moves from the constellation Taurus into Gemini, as shown by the map.
It is 1° further north on the 30th than on the 1st,
The days grow 11 minutes longer, the afternoons increasing 11 min., the mornings remaining of the same length.

The Moon.

New Moon may first be seen the 22d: it sets then 8.31 P.M., 26° N. of W.
The *best moonlight evenings* are between the 1st and 6th, and after the 28th: see also p. 12.
The map shows that the moon runs *furthest south* the 7th, and *furthest north* the 21st.
Also, that the moon passes north of Spica the 1st; south of Venus the 24th; north of Regulus the 25th; north of Spica the 29th.

Astronomical Notes.

Venus and **Jupiter** claim especial attention this month on account of their great brilliancy. The former sets, through June, nearly three hours after sunset, far north of the west point of the horizon; under the telescope the planet exhibits a half-moon shape. Jupiter is south at the close of twilight: it is stationary the 23d, and is at that date 5 degrees E. and 2 degrees N. of Spica. Jupiter's weight exceeds that of all the other planets combined: and its diameter is eleven times that of the earth. **Saturn,** though evening star, becomes invisible by the close of June, when it disappears in the rays of the sun. The brilliant winter constellations have now disappeared from the western sky. The most noticeable fixed stars in the evening sky this month are: **Regulus,** west, in Leo; **Spica** (in Virgo), south at 8.30, June 1, and **Arcturus** in Bootes, south an hour later; the bright blue **Vega** (in Lyra), high up in the northeast; **Altair** in Aquila, rising nearly due east; and the red **Antares** (in Scorpio) rising June 1 shortly after sunset. Preceding Scorpio westward are two bright stars some 10° apart, marking the constellation **Libra** the Scales.

D. M.	D. W.	New Haven. A. M.	New Haven. P. M.	New London. A. M.	New London. P. M.	Stonington. A. M.	Stonington. P. M.	Block Island. A. M.	Block Island. P. M.	D. M.
1	F	7 23	7 54	5 37	6 8	4 54	5 25	3 44	4 14	1
2	S	8 21	8 47	6 29	6 55	5 50	6 16	4 45	5 5	2
3	S	9 11	9 34	7 17	7 40	6 48	7 11	5 35	5 49	3
4	M	10 0	10 18	8 6	8 24	7 47	8 5	6 22	6 31	4
5	T	10 49	11 0	8 55	9 6	9 36	8 47	7 11	7 16	5
6	W	11 35	11 43	9 42	9 50	8 26	9 34	7 51	7 52	6
7	T	———	12 18	10 27	10 31	10 13	10 17	8 30	8 27	7
8	F	0 22	1 10	11 19	11 18	11 5	11 4	9 13	9 8	8
9	S	1 9	2 0	———	12 14	12 1	11 56	9 53	9 49	9
10	S	1 48	2 49	0 9	1 10	———	12 57	10 31	10 30	10
11	M	2 36	3 39	1 2	2 5	0 47	1 50	11 22	11 21	11
12	T	3 32	4 34	1 58	3 0	1 43	2 45	———	12 9	12
13	W	4 26	5 22	2 54	3 50	3 35	3 31	0 18	1 7	13
14	T	5 19	6 8	3 46	4 35	3 18	4 7	1 23	2 8	14
15	F	6 8	6 49	4 35	5 16	4 7	4 48	2 24	2 59	15
16	S	6 57	7 32	5 20	5 55	4 41	5 16	3 30	3 55	16
17	S	7 51	8 19	6 5	6 33	5 22	5 50	4 26	4 42	17
18	M	8 41	9 3	6 49	7 11	6 10	6 32	5 11	5 23	18
19	T	9 28	9 42	7 34	7 48	7 5	7 19	5 51	6 0	19
20	W	10 12	10 22	8 18	8 28	7 59	8 9	6 31	6 37	20
21	T	10 57	11 4	9 4	9 11	8 48	8 55	7 10	7 16	21
22	F	11 48	11 51	9 57	10 0	9 43	9 46	7 50	7 58	22
23	S	———	12 41	10 55	10 55	10 42	10 42	8 33	8 45	23
24	S	0 41	1 42	11 56	11 55	11 43	11 42	9 21	9 34	24
25	M	1 34	2 38	———	12 59	———	12 46	10 16	10 30	25
26	T	2 34	3 37	1 0	2 3	0 45	1 48	11 19	11 45	26
27	W	3 40	4 37	2 8	3 5	1 49	2 46	———	12 27	27
28	T	4 48	5 36	3 15	4 3	2 47	3 35	0 59	1 38	28
29	F	5 54	6 29	4 17	4 52	3 38	4 13	2 15	2 47	29
30	S	7 1	7 35	5 15	5 49	4 32	5 6	3 27	3 48	30
31	S	8 1	8 28	6 9	6 36	5 30	5 57	4 28	4 41	31

Compared with **NEW HAVEN**, High Water at **Sachem's Head** is 16 minutes earlier. **Bridgeport**, 4 minutes later. **Sheffield Island**, 16 minutes later.

Compared with **NEW LONDON**, (Light-House,) High Water at **Navy Yard Site** is 22 minutes later. **Norwich**, 45 minutes later. **Little Gull Island**, 11 minutes later. **Saybrook**, 1 hour later.

High Water is 7 minutes earlier at **Watch Hill** than at **Stonington.**

High Water is 1 hour later at **Montauk Pt.** than at **Block Island.**

Greatest High Tide—at New Haven, 3d, P. M., 6.8 ft. above level of average low water. New London, 2d, P. M., 3.2 ft.

Smallest High Tide—at New Haven, 14th, A. M., 4.8 ft.; at New London, 13th, A. M., 1.8 ft.

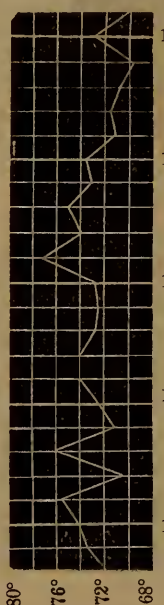
See General Tide Table.

METEOROLOGICAL RECORD.

AVERAGE.

D M	Bar.	Tem	Rel Hu
1			
2	29.96	70° .6	69.
3			
4	29.96	70 .9	69.2
5			
6	29.96	71 .1	69.4
7			
8	29.96	71 .3	69.6
9			
10	29.95	71 .5	69.6
11			
12	29.95	71 .7	69.8
13			
14	29.95	71 .8	69.8
15			
16	29.95	71 .9	70.1
17			
18	29.95	72 .0	70.3
19			
20	29.95	72 .0	70.5
21			
22	29.95	72 .1	70.7
23			
24	29.95	72 .1	70.8
25			
26	29.95	72 .1	71.
27			
28	29.95	72 0	71.1
29			
30	29.95	72 .0	71.2
31			

Comp'tive Temperature.



Prevailing wind, S. W. by W.

Dry wind, N. W.

Wet wind, S.

Probable amount of rain, 5.0 in.

Greatest amount of rain in the last twenty-four years (Middletown), 11.2 in.

Least amount of rain in the last twenty-four years (Middletown), 1.4 in.

Probable highest temperature, 89°.

Probable lowest temperature, 54°.

Highest observed temperature, 101°.

Lowest observed temperature, 44°.

Comparative Rainfall.



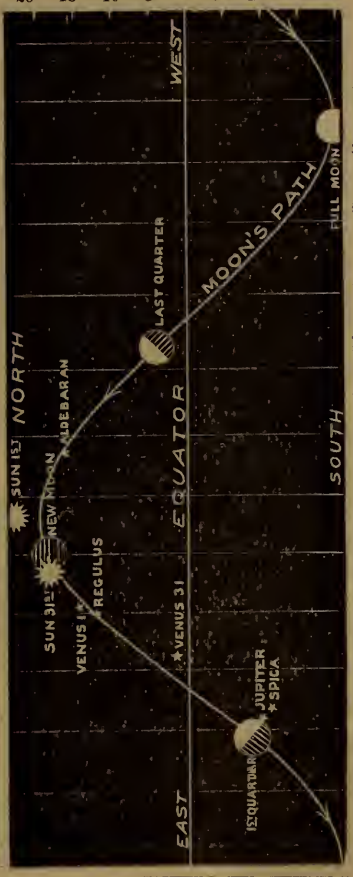
Church Days, Holidays, etc.	d.
4th Sunday after Trinity	3
Independence Day	4
5th Sunday after Trinity	10
6th Sunday after Trinity	17
7th Sunday after Trinity	24
St. James	25
8th Sunday after Trinity	31

Moon's Phases, etc.				
Full Moon	5d	3h	34m	morn.
Last Quarter	13	1	57	morn.
New Moon	20	3	50	aft.
First Quarter	27	9	30	morn.
Apogee	12	2	—	morn.
Perigee	24	1	—	morn.

In Eastern Time—that of the 75th Meridian west from Greenwich.

D. M.	D. W.	The Sun. Rises h. m.	The Sun. Sets h. m.	The Moon. Rises Aft. h. m.	The Moon. Sets Morn. h. m.
1	Fri	4 22	7 28	3 40	1 38
2	Sat	4 22	7 28	4 48	2 16
3	S	4 23	7 28	5 51	3 1
4	M	4 24	7 28	6 50	3 50
5	Tu	4 24	7 28	7 42	4 44
6	W	4 25	7 27	8 27	5 41
7	Th	4 25	7 27	9 7	6 40
8	Fri	4 26	7 27	9 41	7 40
9	Sat	4 27	7 26	10 13	8 39
10	S	4 27	7 26	10 41	9 38
11	M	4 28	7 26	11 9	10 35
12	Tu	4 29	7 25	11 36	11 31
13	W	4 30	7 25	morn	aft
14	Th	4 30	7 24	0 4	1 26
15	Fri	4 31	7 23	0 34	2 25
16	Sat	4 32	7 23	1 7	3 24
17	S	4 33	7 22	1 45	4 24
18	M	4 34	7 22	2 28	5 23
19	Tu	4 35	7 21	3 20	6 20
20	W	4 35	7 20	4 18	7 12
21	Th	4 36	7 19	5 22	7 58
22	Fri	4 37	7 19	6 31	8 42
23	Sat	4 38	7 18	7 42	9 19
24	S	4 39	7 17	8 54	9 55
25	M	4 40	7 16	10 5	10 29
26	Tu	4 41	7 15	11 14	11 3
27	W	4 42	7 14	aft.	11 38
28	Th	4 43	7 13	1 32	morn
29	Fri	4 44	7 12	2 38	0 17
30	Sat	4 45	7 11	3 42	0 58
31	S	4 46	7 10	4 41	1 45

Moon's Path among the Constellations.



The Sun.

At the Beginning of this Month:

Day breaks, 2.9.

Twilight ends, 9.41.

Length of day, 15h 6m.

Sun on noon mark, 11.55 (see p. 4).

Sun is 23° N. of equator: it rises 30° N. of E., and sets 30° N. of W.

During the Month:

The sun moves from the constellation Gemini into Cancer, as shown by the map.

It is 5° further south on the 31st than on the 1st.

The days grow 42 minutes shorter, the mornings decreasing 24 minutes, the afternoons 18 min.

The Moon.

New Moon may be first seen the 22d; it sets then 8.42 P. M., 17° N. of W.

The *best moonlight evenings* are between the 1st and 6th, and after the 27th: see also p. 12.

The map shows that the moon runs *furthest south* the 4th, and *furthest north* the 19th.

Also, that the moon passes north of Aldebaran the 16th; north of Regulus the 22d; north of Venus the 23d; north of Jupiter the 26th.

Astronomical Notes.

Venus as evening star reaches its greatest apparent distance (*elongation*) from the sun, 45 degrees, 33 minutes, July 13: however, it sets then at a shorter interval (2½ hours) after the sun than on June 1. Under the telescope, the form of the planet changes during July from half-moon to crescent. Venus passes one degree south of Regulus in Leo July 4. The crescent moon will appear close to Venus in the evening sky of the 23d, and the half moon near **Jupiter** the 26th. Jupiter is also a brilliant evening star this month, and as twilight fades appears west of the meridian. During July the eclipses of Jupiter's moons may be observed to best advantage. The largest moon disappears in eclipse July 10, 7.40 P. M., and reappears at 9.17 on the same side of the planet. The constellation **Leo** sets July 1 at 10; **Spica** is south 6.30; **Libra** appears on the meridian as twilight disappears; the most remarkable zodiacal constellation in the evening sky is **Scorpio**; its principal star, the red **Antares**, is south at 9 P. M., July 10. The grouping of the stars in Scorpio suggests the figure of a *kite*, and hence this name is frequently applied to the constellation. East from Scorpio is **Sagittarius** the archer. July 1, **Arcturus** at sunset is south; 1h 20m later the beautiful **Northern Crown** crosses the meridian. The brilliant blue star east from overhead is **Vega.**

HIGH TIDE 1887 AUGUST

D. M.	D. W.	New Haven. A. M.	New Haven. P. M.	New London. A. M.	New London. P. M.	Stonington. A. M.	Stonington. P. M.	Block Island. A. M.	Block Island. P. M.	D. M.
1	M	8 54	9 15	7 0	7 21	6 31	6 52	5 21	5 26	1
2	T	9 43	9 58	7 49	8 4	7 20	7 35	6 13	6 13	2
3	W	10 30	10 38	8 36	8 44	8 17	8 25	6 55	6 52	3
4	T	11 13	11 17	9 19	9 23	9 0	9 4	7 39	7 34	4
5	F	11 57	11 54	10 4	10 1	9 48	9 45	8 24	8 11	5
6	S	———	12 40	10 49	10 40	10 35	10 26	8 43	8 43	6
7	S	0 31	1 27	11 36	11 15	11 22	11 1	9 18	9 18	7
8	M	1 6	2 18	12 27	11 49	———	12 14	9 54	9 53	8
9	T	1 28	2 59	———	1 20	———	1 7	10 32	10 32	9
10	W	2 8	3 48	0 34	2 14	0 14	1 59	11 21	11 23	10
11	T	3 4	4 41	1 30	3 7	1 15	2 52	———	12 7	11
12	F	4 12	5 20	2 40	3 58	2 21	3 39	0 26	1 7	12
13	S	5 21	6 18	3 48	4 45	3 20	4 17	1 38	2 10	13
14	S	6 25	7 6	4 48	5 29	4 9	4 50	2 51	3 12	14
15	M	7 27	7 56	5 41	6 10	4 58	5 27	3 53	4 5	15
16	T	8 24	8 43	6 32	6 51	5 53	6 12	4 45	4 52	16
17	W	9 9	9 24	7 17	7 32	6 38	6 53	5 37	5 41	17
18	T	9 57	10 7	8 3	8 13	7 34	7 44	6 19	6 23	18
19	F	10 46	10 52	8 52	8 58	9 33	8 39	6 59	7 7	19
20	S	11 36	11 39	8 43	9 46	9 27	9 30	7 37	7 48	20
21	S	———	12 27	10 36	10 36	10 22	10 22	8 19	8 30	21
22	M	0 27	1 20	11 34	11 31	11 21	11 18	9 05	9 19	22
23	T	1 17	2 13	———	12 34	———	12 21	9 56	10 13	23
24	W	2 7	3 11	0 33	1 37	0 18	1 22	10 57	11 27	24
25	T	3 13	4 12	1 41	2 40	1 22	2 21	———	12 3	25
26	F	4 22	5 13	2 49	3 40	2 21	3 12	0 40	1 11	26
27	S	5 32	6 13	3 55	4 36	3 16	3 57	1 57	2 19	27
28	S	6 32	7 6	4 55	5 29	4 16	4 50	3 9	3 21	28
29	M	7 37	8 2	5 51	6 16	5 8	5 33	4 15	4 19	29
30	T	8 34	8 53	6 42	7 1	6 3	6 22	5 11	5 8	30
31	W	9 24	9 37	7 30	7 43	7 1	7 14	5 55	5 50	31

Compared with **NEW HAVEN**, High Water at **Sachem's Head** is 16 minutes earlier. **Bridgeport**, 4 minutes later. **Sheffield Island**, 16 minutes later.

Compared with **NEW LONDON**, (Light-House), High Water at **Navy Yard Site** is 22 minutes later. **Norwich**, 45 minutes later. **Little Gull Island**, 11 minutes later. **Saybrook**, 1 hour later.

High Water is 7 minutes earlier at **Watch Hill** than at **Stonington.**

High Water is 1 hour later at **Montauk Pt.** than at **Block Island.**

Greatest High Tide—at New Haven, 1st, P. M., 6.7 ft. above level of average low water. New London, 1st, P. M., 3.1 ft.

Smallest High Tide—at New Haven, 13th, A.M., 4.9 ft.; at New London, 10th, A. M., 1.7 ft.

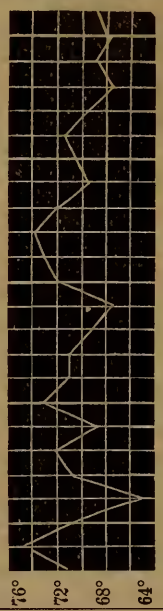
See General Tide Table.

METEOROLOGICAL RECORD.

AVERAGE.

D M	Bar.	Tem	Rel Hu
1			
2	29.95	71° .9	71.2
3			
4	29.95	71 .7	71.5
5			
6	29.96	71 .6	71.6
7			
8	29.96	71 .5	71.7
9			
10	29.96	71 .3	71.8
11			
12	29.97	71 .1	71.9
13			
14	29.97	70 .9	72.
15			
16	29.97	70 .6	72.1
17			
18	29.97	70 .3	72.1
19			
20	29.98	70 .0	72.1
21			
22	29.99	69 .6	72.2
23			
24	29.99	69 .3	72.2
25			
26	30.00	68 .9	72.2
27			
28	30.00	68 .4	72.2
29			
30	30.00	67 .9	72.2
31			

Comparative Temperature.



Prevailing wind, S. W. by W.

Dry wind, E.

Wet wind, S. W. or calm.

Probable amount of rain, 6.6 in.

Greatest amount in the last twenty-four years (Middletown), 13 in.

Least amount in the last twenty-four years (Middletown), 1 in.

Probable highest temperature 89°.

Probable lowest temperature 52°.

Highest observed temperature, 98°.

Lowest observed temperature, 39°.

Comparative Rainfall.



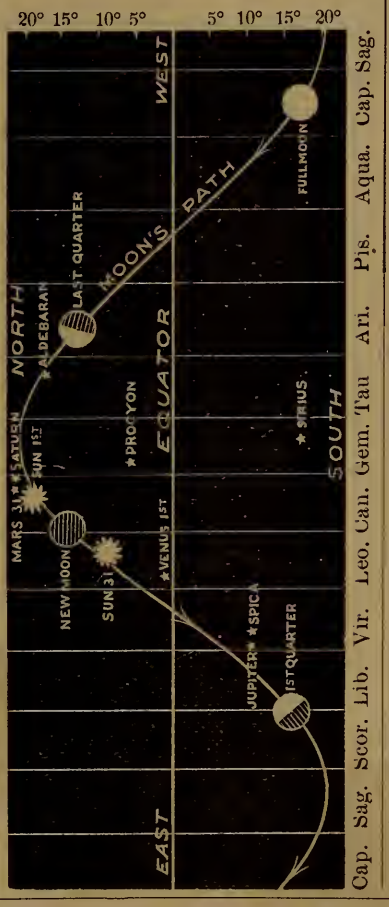
Church Days, Holidays, etc.	d.
9th Sunday after Trinity	7
10th Sunday after Trinity	14
11th Sunday after Trinity	21
St. Bartholomew	24
12th Sunday after Trinity	28

Moon's Phases, etc.				
Full Moon	3d	3h	40m	aft.
Last Quarter	11	6	36	eve.
New Moon	19	0	39	morn.
First Quarter	25	3	21	aft.
Apogee	8	8	—	eve.
Perigee	20	7	—	eve.

In Eastern Time—that of the 75th Meridian west from Greenwich.

D. M.	D. W.	The Sun. Rises	Sets	The Moon. Rises	Sets
				Aft.	Morn.
		h. m.	h. m.	h. m.	h. m.
1	M	4 46	7 9	5 35	2 36
2	Tu	4 48	7 8	6 22	3 32
3	W	4 49	7 7	7 4	4 29
4	Th	4 50	7 6	7 41	5 29
5	Fri	4 51	7 4	8 12	6 29
6	Sat	4 52	7 3	8 42	7 26
7	S	4 53	7 2	9 10	8 24
8	M	4 54	7 1	9 37	9 21
9	Tu	4 55	6 59	10 5	10 18
10	W	4 56	6 58	10 33	11 15
11	Th	4 57	6 57	11 4	aft.
12	Fri	4 58	6 56	11 40	1 11
13	Sat	4 59	6 54	morn	2 9
14	S	5 0	6 53	0 20	3 8
15	M	5 1	6 51	1 6	4 6
16	Tu	5 2	6 50	2 0	5 0
17	W	5 3	6 48	3 2	5 49
18	Th	5 4	6 47	4 10	6 34
19	Fri	5 5	6 46	5 22	7 15
20	Sat	5 6	6 44	6 35	7 55
21	S	5 7	6 43	7 47	8 31
22	M	5 8	6 41	9 1	9 4
23	Tu	5 9	6 40	10 12	9 39
24	W	5 10	6 38	11 23	10 17
25	Th	5 11	6 36	aft.	10 58
26	Fri	5 12	6 35	1 36	11 42
27	Sat	5 13	6 33	2 36	morn
28	S	5 14	6 31	3 31	0 32
29	M	5 15	6 30	4 20	1 26
30	Tu	5 16	6 29	5 2	2 22
31	W	5 17	6 27	5 40	3 20

Moon's Path among the Constellations.



The Sun.

At the Beginning of this Month:

Day breaks 2.38.

Twilight ends 9.17.

Length of day, 14h 23m.

Sun on noon mark, 11.58 (see p. 4).

Sun is 18° N. of equator: it rises 25° N. of E., and sets 25° N. of W.

During the Month:

The sun moves from the constellation Cancer into Leo, as shown by the map.

It is 9° further south on the 31st than on the 1st.

The days grow 73 minutes shorter, the mornings decreasing 31 min., the afternoons 42 min.

The Moon.

New Moon may be first seen the 20th; it sets then 7.55 P. M., 8° N of W.

The *best moonlight evenings* are between the 1st and 6th, and after the 25th: see also p. 12.

The map shows that the moon runs *furthest south* the 1st and 28th, and *furthest north* the 15th.

Also, that the moon passes north of Aldebaran the 13th; south of Mars the 16th; south of Spica the 22d.

Astronomical Notes.

Venus is still a bright evening star, but rapidly approaches the sun and disappears in its rays by the close of the month. The date of its greatest brilliancy is Aug. 15. Under the telescope Venus now exhibits a slender crescent form, and will be a very interesting object for telescopic study. **Jupiter** is a brilliant evening star, setting at half-past 10 Aug. 1, and at half-past 8 the 31st. In the morning sky of the 9th, Mercury will appear 1½ degrees E. and 3½ degrees S. of Saturn. Mars and Saturn are but one degree apart the 28th. At the end of twilight August 1, **Leo** is setting in the west; next eastward appear Spica and **Jupiter** in **Virgo;** between these stars and the zenith appears the red **Arcturus;** following Virgo eastward is **Libra,** then **Scorpio** and **Antares,** just west of the meridian; and east of it appears **Sagittarius,** with the group of stars which form the well known "Milk Dipper." The bright blue star **Altair,** in **Aquila** the Eagle, is southeast and midway between horizon and zenith: Altair is attended by two small companion stars, one on each side; a little east from overhead is **Vega** in **Lyra.** Following Lyra eastward is the fine constellation **Cygnus,** iying in a very bright part of the Milky Way. *Deneb*, its brightest star, is situated in the Great Cross.

HIGH TIDE 1887 SEPTEMBER

D. M.	D. W.	New Haven. A. M.	New Haven. P. M.	New London. A. M.	New London. P. M.	Stonington. A. M.	Stonington. P. M.	Block Island. A. M.	Block Island. P. M.	D. M.
1	T	10 5	10 15	8 11	8 21	7 52	8 2	6 48	6 43	1
2	F	10 47	10 52	8 53	8 58	8 34	8 39	7 30	7 28	2
3	S	11 28	11 25	9 34	9 31	9 15	9 12	8 3	8 5	3
4	S	12 7	11 53	10 14	10 0	9 58	9 44	8 41	8 42	4
5	M	12 46	———	10 55	10 31	10 41	10 17	9 16	9 18	5
6	T	0 22	1 23	11 37	11 6	11 24	10 53	9 50	9 52	6
7	W	0 57	2 10	12 24	11 52	12 11	12 39	10 26	10 29	7
8	T	1 31	2 59	———	1 20	———	1 7	11 4	11 14	8
9	F	2 22	3 53	0 48	2 19	0 33	2 4	11 48	———	9
10	S	3 35	4 49	2 3	3 17	1 44	2 58	0 1	12 34	10
11	S	4 47	5 44	3 15	4 12	2 56	3 53	1 4	1 31	11
12	M	5 57	6 34	4 24	5 1	3 56	4 33	2 5	2 21	12
13	T	6 57	7 25	5 20	5 48	4 41	5 9	3 2	3 9	13
14	W	7 56	8 18	6 10	6 32	5 27	5 49	3 57	4 1	14
15	T	8 51	9 7	6 59	7 15	6 20	6 36	4 56	5 1	15
16	F	9 42	9 53	7 48	7 59	7 19	7 30	5 54	6 5	16
17	S	10 30	10 39	8 36	8 45	8 17	8 26	6 52	7 4	17
18	S	11 17	11 24	9 24	9 31	9 8	9 15	7 43	7 56	18
19	M	———	12 6	10 15	10 19	10 1	10 5	8 32	8 47	19
20	T	0 10	12 55	11 9	11 12	10 56	10 59	9 20	9 37	20
21	W	0 58	1 45	———	12 6	11 53	11 57	10 4	10 30	21
22	T	1 46	2 43	0 12	1 9	———	12 54	10 58	11 26	22
23	F	2 52	3 44	1 20	2 12	1 1	1 53	11 52	———	23
24	S	4 1	4 46	2 29	3 14	2 10	2 55	0 25	12 41	24
25	S	5 8	5 44	3 35	4 11	3 7	3 43	1 25	1 37	25
26	M	6 13	6 43	4 36	5 6	3 57	4 27	2 24	2 28	26
27	T	7 16	7 41	5 30	5 55	4 47	5 12	3 28	3 24	27
28	W	8 10	8 32	6 18	6 40	5 39	6 1	4 30	4 23	28
29	T	8 55	9 13	7 3	7 21	6 24	6 42	5 20	5 16	29
30	F	9 39	9 54	7 45	8 0	7 16	7 31	6 11	6 12	30

Compared with **NEW HAVEN**, High Water at **Sachem's Head** is 16 minutes earlier.

Bridgeport, 4 minutes later.

Sheffield Island, 16 minutes later.

Compared with **NEW LONDON**, (Light-House), High Water at **Navy Yard Site** is 22 minutes later.

Norwich, 45 minutes later.

Little Gull Island, 11 minutes later.

Saybrook, 1 hour later.

High Water is 7 minutes earlier at **Watch Hill** than at **Stonington.**

High Water is 1 hour later at **Montauk Pt.** than at **Block Island.**

Greatest High Tide—at New Haven, 17th, A.M., 6.7 ft. above level of average low water. New London, 18th, A. M., 3.1 ft.

Smallest High Tide—at New Haven, 10th, A.M., 5.0 ft.; at New London, 9th, A. M , 1.8 ft.

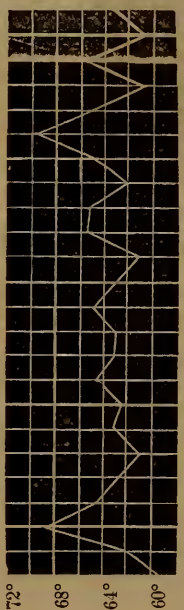
See General Tide Table.

METEOROLOGICAL RECORD.

AVERAGE.

D M	Bar.	Tem	Rel Hu
1			
2	30.01	67° .1	72.2
3			
4	30.01	66 .5	72.2
5			
6	30.01	65 .9	72.1
7			
8	30.02	65 .3	72.
9			
10	30.02	64 .6	72.
11			
12	30.03	64 .0	72.
13			
14	30.03	63 .3	72.
15			
16	30.03	62 .5	71.9
17			
18	30.04	61 .8	71.8
19			
20	30.03	61 .0	71.8
21			
22	30.05	60 .2	71.7
23			
24	30.05	59 .4	71.6
25			
26	30.05	58 .6	71.5
27			
28	30.05	57 .7	71.4
29			
30	30.06	56 .9	71.3

Comparative Temp.



Prevailing wind, W. by N.

Dry wind, N. W.

Wet wind, S. W.

Probable amount of rain, 3.3 in.

Greatest amount in the last twenty-four years (Middletown), 11.64 in.

Least amount in the last twenty-four years (Middletown), 0.5 in.

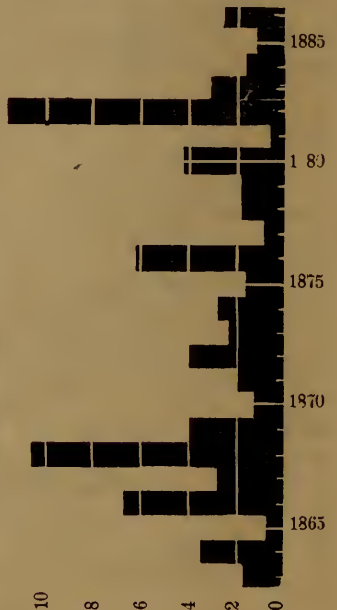
Probable highest temperature, 80°.

Probable lowest temperature, 44°.

Highest observed temperature, 92°.

Lowest observed temperature, 27°.

Comparative Rainfall.



CALENDAR 1887 SEPTEMBER

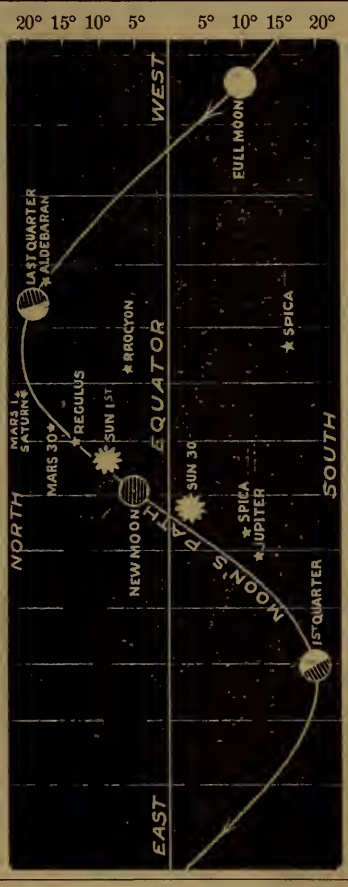
Church Days, Holidays, etc.	d.
13th Sunday after Trinity	4
14th Sunday after Trinity	11
15th Sunday after Trinity	18
St. Matthew	21
16th Sunday after Trinity	25
St. Michael and All Angels	29

Moon's Phases, etc.			
Full Moon	2d	6h	13m morn.
Last Quarter	10	10	3 morn.
New Moon	17	9	0 morn.
First Quarter	24	0	4 morn.
Apogee	5	10	— morn.
Perigee	18	2	— morn.

In Eastern Time—that of the 75th Meridian west from Greenwich.

D. M.	D. W.	The Sun. Rises	Sets	The Moon. Rises Eve.	Sets Morn.
		h. m.	h. m.	h. m.	h. m.
1	Th	5 18	6 25	6 13	4 19
2	Fri	5 19	6 24	6 43	5 18
3	Sat	5 20	6 22	7 12	6 16
4	S	5 21	6 20	7 39	7 12
5	M	5 22	6 19	8 6	8 9
6	Tu	5 23	6 17	8 35	9 6
7	W	5 24	6 15	9 4	10 3
8	Th	5 25	6 14	9 37	11 0
9	Fri	5 26	6 12	10 14	11 58
10	Sat	5 27	6 10	10 57	aft
11	S	5 28	6 9	11 47	1 52
12	M	5 29	6 7	morn	2 47
13	Tu	5 30	6 5	0 43	3 37
14	W	5 31	6 4	1 46	4 23
15	Th	5 32	6 2	2 55	5 7
16	Fri	5 33	6 0	4 8	5 45
17	Sat	5 34	5 58	5 23	6 23
18	S	5 35	5 57	6 38	6 59
19	M	5 36	5 55	7 52	7 35
20	Tu	5 37	5 53	9 6	8 13
21	W	5 38	5 51	10 18	8 54
22	Th	5 39	5 50	11 27	9 39
23	Fri	5 40	5 48	aft	10 28
24	Sat	5 41	5 46	1 27	11 21
25	S	5 42	5 45	2 16	morn
26	M	5 43	5 43	3 2	0 16
27	Tu	5 44	5 41	3 41	1 14
28	W	5 45	5 39	4 16	2 12
29	Th	5 46	5 38	4 46	3 11
30	Fri	5 47	5 36	5 15	4 9

Moon's Path among the Constellations.



The Sun.

At the Beginning of this Month:

Day breaks 3.20.

Twilight ends 8.23.

Length of day, 13h 7m.

Sun on noon mark, 11.52 (see p. 4).

Sun is 8° N. of equator; it rises 12° N. of E., and sets 12° N. of W.

During the Month:

The sun moves from the constellation Leo into Virgo, as shown by the map.

It "crosses the line," *i. e.*, the equator, the 23d; and is 11° further south on the 30th than on the 1st.

The days grow 78 minutes shorter, the mornings decreasing 29 min., the afternoons 49 min.

The Moon.

New Moon may be first seen the 19th: it sets then 7.35 P. M., 10° S. of W.

The *best moonlight evenings* are between the 1st and 6th, and after the 24th: see also p. 12.

The map shows that the moon runs *furthest north* the 12th, and *furthest south* the 24th.

Also, that the moon passes north of Aldebaran the 9th; north of Regulus the 15th; north of Spica the 19th.

Astronomical Notes.

Jupiter remains evening star in the western sky till the end of September, when its proximity to the sun renders it invisible. **Venus** being invisible this month, and the other planets being morning stars, the fixed stars invite special observation. All the constellations named last month have shifted westward, and rise, come to the meridian, and set, two hours earlier. At the end of twilight September 1, **Libra** is nearly setting W. S. W.; **Scorpio** and the red star **Antares** are southwest; the "Milk Dipper" of **Sagittarius,** in a very bright part of the Milky Way, is south, and next following eastward are the zodiacal constellations **Capricornus** and **Aquarius,** neither containing very conspicuous stars; above Sagittarius and a little east from the meridian appears **Altair** in the Eagle; and very near the zenith shines the beautiful blue **Vega** in the Harp. Vega is ranked the brightest star in the northern hemisphere, and after the lapse of some 12,000 years will be the Polar Star. It passes very nearly overhead at Washington, D. C., and at other places having the same latitude. The Harvest Moon, being the full moon nearest the autumnal equinox, occurs this year in October.

D. M.	D. W.	New Haven. A. M.	New Haven. P. M.	New London. A. M.	New London. P. M.	Stonington. A. M.	Stonington. P. M.	Block Island. A. M.	Block Island. P. M.	D. M.
1	S	10 17	10 27	8 23	8 33	8 4	8 14	6 57	7 1	1
2	S	10 55	10 57	9 1	9 3	8 42	8 44	7 32	7 38	2
3	M	11 30	11 24	9 37	9 31	9 21	9 15	8 8	8 14	3
4	T	12 09	11 50	10 16	9 57	10 0	9 41	8 39	8 45	4
5	W	———	12 45	10 54	10 28	10 40	10 14	9 14	9 22	5
6	T	0 19	1 26	11 40	11 11	11 27	10 58	9 45	9 57	6
7	F	0 57	2 19	———	12 33	———	12 20	10 29	10 47	7
8	S	1 57	3 14	0 18	1 35	0 5	1 22	11 14	11 40	8
9	S	3 15	4 12	1 41	2 38	1 26	2 23	———	12 2	9
10	M	4 28	5 11	2 56	3 39	2 37	3 20	0 27	12 43	10
11	T	5 33	6 7	4 0	4 34	3 32	4 6	1 43	1 53	11
12	W	6 36	7 3	4 59	5 26	4 20	4 47	2 58	3 6	12
13	T	7 37	8 1	5 51	6 15	5 8	5 32	3 57	4 3	13
14	F	8 33	8 54	6 41	7 2	6 2	6 23	4 49	4 58	14
15	S	9 23	9 41	7 29	7 47	7 0	7 18	5 36	5 49	15
16	S	10 11	10 26	8 17	8 32	7 58	8 13	6 24	6 41	16
17	M	10 58	11 12	9 4	9 18	8 45	8 59	7 7	7 25	17
18	T	11 46	———	9 53	10 7	9 37	9 51	7 48	8 8	18
19	W	0 0	12 35	10 44	10 59	10 30	10 45	8 28	8 52	19
20	T	0 50	1 26	11 40	11 58	11 27	11 45	9 14	9 42	20
21	F	1 37	2 17	———	12 38	———	12 25	10 3	10 32	21
22	S	2 30	3 14	0 56	1 40	0 41	1 25	11 1	11 54	22
23	S	3 29	4 14	1 57	2 42	1 38	2 23	———	12 4	23
24	M	4 43	5 16	3 10	3 43	2 42	3 15	1 7	1 11	24
25	T	5 47	6 17	4 10	4 40	3 31	4 1	2 21	2 17	25
26	W	6 40	7 7	5 3	5 30	4 24	4 51	3 27	3 19	26
27	T	7 37	8 0	5 51	6 14	5 8	5 31	4 22	4 22	27
28	F	8 26	8 45	6 34	6 53	5 55	6 14	5 4	5 9	28
29	S	9 8	9 23	7 14	7 29	6 45	7 0	5 46	5 54	29
30	S	9 45	9 57	7 51	8 3	7 22	7 34	6 16	6 25	30
31	M	10 20	10 27	8 26	8 33	8 7	8 14	6 43	6 55	31

Compared with **NEW HAVEN**, High Water at **Sachem's Head** is 16 minutes earlier.

Bridgeport, 4 minutes later.

Sheffield Island, 16 minutes later.

Compared with **NEW LONDON**, (Light-House), High Water at **Navy Yard Site** is 22 minutes later.

Norwich, 45 minutes later.

Little Gull Island, 11 minutes later.

Saybrook, 1 hour later.

High Water is 7 minutes earlier at **Watch Hill** than at **Stonington.**

High Water is 1 hour later at **Montauk Pt.** than at **Block Island.**

Greatest High Tide—at New Haven, 16th, A.M., 7.0 ft. above level of average low water. New London, 16th, A. M., 3.3 ft.

Smallest High Tide—at New Haven, 9th, A. M., 5.3 ft.; at New London, 8th, A. M., 2.0 ft.

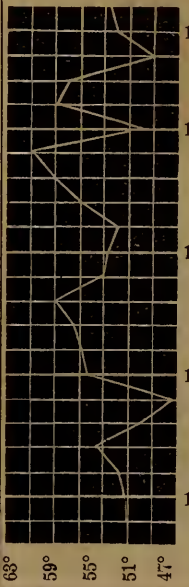
See General Tide Table.

METEOROLOGICAL RECORD.

AVERAGE.

D M	Bar.	Tem	Rel Hu
1			
2	30.06	56° .1	71.2
3			
4	30.06	55 .3	71
5			
6	30.06	54 .6	70 9
7			
8	30.06	53 .9	70.9
9			
10	30.06	53 .2	70.8
11			
12	30.07	52 .5	70.8
13			
14	30.07	51 .3	70.7
15			
16	30.07	51 .1	70.7
17			
18	30.07	50 .4	70.7
19			
20	30.07	49 .7	70.6
21			
22	30.07	49 .0	70.6
23			
24	30.07	48 .3	70.6
25			
26	30.07	47 .6	70.6
27			
28	30 07	46 .9	70.7
29			
30	30.07	46 .2	70.7
31			

Comparative Temp.



Prevailing wind, W. by N.

Wet wind, S.

Dry wind, N. W.

Probable am't of rain, 3.8 in.

Greatest am't in the last 24 years (Middletown), 15.54 in.

Least amount in the last 24 years (Middletown), 0.89 in.

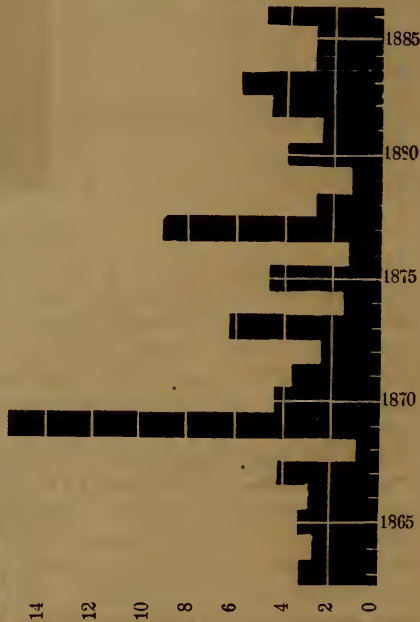
Probable highest temperature, 73°.

Probable lowest temperature, 29°.

Highest observed temperature, 83°.

Lowest observed temperature, 19°.

Comparative Rainfall.



Church Days, Holidays, etc.	d.
17th Sunday after Trinity	2
Election Day (for Town Officers)	3
18th Sunday after Trinity	9
19th Sunday after Trinity	16
St. Luke	18
20th Sunday after Trinity	23
St. Simon and St. Jude	28
21st Sunday after Trinity	30

Moon's Phases, etc.				
Full Moon	1d	10h	47m	eve.
Last Quarter	9	11	51	eve.
New Moon	16	5	35	aft.
First Quarter	23	0	46	aft.
Full Moon	31	4	31	aft.
Apogee	2	6	—	eve.
Perigee	16	1	—	aft.
Apogee	29	6	—	eve.

In Eastern Time—that of the 75th Meridian west from Greenwich.

D. M.	D. W.	The Sun. Rises h. m.	The Sun. Sets h. m.	The Moon. Rises Aft. h. m.	The Moon. Sets Morn. h. m.
1	Sat	5 48	5 34	5 43	5 6
2	S	5 49	5 33	6 10	6 3
3	M	5 50	5 31	6 37	7 0
4	Tu	5 51	5 29	7 6	7 56
5	W	5 53	5 28	7 38	8 54
6	Th	5 54	5 26	8 13	9 51
7	Fri	5 55	5 24	8 52	10 48
8	Sat	5 56	5 23	9 39	11 44
9	S	5 57	5 21	10 31	aft.
10	M	5 58	5 20	11 29	1 29
11	Tu	5 59	5 18	morn	2 15
12	W	6 0	5 16	0 34	2 58
13	Th	6 1	5 15	1 43	3 38
14	Fri	6 2	5 13	2 55	4 15
15	Sat	6 3	5 12	4 10	4 52
16	S	6 5	5 10	5 25	5 27
17	M	6 6	5 8	6 40	6 5
18	Tu	6 7	5 7	7 55	6 46
19	W	6 8	5 6	9 8	7 30
20	Th	6 9	5 4	10 17	8 19
21	Fri	6 10	5 3	11 19	9 13
22	Sat	6 11	5 1	aft.	10 8
23	S	6 13	5 0	1 2	11 6
24	M	6 14	4 58	1 43	morn
25	Tu	6 15	4 57	2 18	0 6
26	W	6 16	4 55	2 50	1 4
27	Th	6 17	4 54	3 19	2 2
28	Fri	6 18	4 53	3 46	3 0
29	Sat	6 20	4 51	4 13	3 57
30	S	6 21	4 50	4 40	4 54
31	M	6 22	4 49	5 8	5 51

Moon's Path among the Constellations.



The Sun.

At the beginning of this Month:

Day breaks at 3.58.

Twilight ends 7.23.

Length of day, 11h. 46m.

Sun on noon mark, 11.41 (see p. 4).

Sun is 3° S. of equator; it rises 4° S. of E., and sets 4° S. of W.

During the Month:

The sun moves from the constellation Virgo into Libra, as shown in the map.

It is 11° further south on the 31st than on the 1st.

The days grow 79 minutes shorter, the mornings decreasing 34 minutes, the afternoons 45 minutes.

The Moon.

New Moon may be first seen the 18th: it sets then 6.46 P. M., 18° S. of W.

The *best moonlight evenings* are between the 1st and 6th, and after the 23d; see also p. 12.

The map shows that the moon runs *furthest north* the 9th, and furthest south the 23d.

Also, that the moon passes north of Aldebaran the 6th; north of Regulus the 13th; south of Mars the 13th; north of Venus the 14th.

Astronomical Notes.

All the planets this month are morning stars. **Venus** emerges from the rays of the sun very rapidly, rising one hour before the sun October 1, and three hours and a half by the close of the month, when it exhibits great brilliancy: the date of greatest brilliancy is October 26: under the telescope it exhibits a slender crescent form through the month. **Jupiter** is invisible this month. For **Saturn** and **Mars,** consult table on page 10. After the end of twilight October 1, the constellation **Scorpio** is setting; next eastward appears **Sagittarius** and the "Milk Dipper;" **Vega** is northwest from the zenith, and **Cygnus** east; this constellation contains several bright stars forming the figure of a large cross, of which the upright piece lies southwest and northeast. 1½ degrees northeast of Vega is a star which appears double if an opera-glass be used, and quadruple under the telescope. At the same time the bright blue star **Altair** in Aquila is south and more than half-way up from horizon to zenith. South from Altair is the zodiacal constellation **Capricornus,** which contains no bright stars. Following Capricornus eastward appear in order **Aquarius, Pisces,** and **Aries** (marked by the bright star *Arietis*) just rising E. N. E.

D. M.	D. W.	New Haven. A. M.	New Haven. P. M.	New London. A. M.	New London. P. M.	Stonington. A. M.	Stonington. P. M.	Block Island. A. M.	Block Island. P. M.	D. M.
1	T	10 55	10 56	9 1	9 2	8 42	8 43	7 15	7 27	1
2	W	11 28	11 25	9 35	9 32	9 19	9 16	7 41	7 56	2
3	T	———	12 4	10 11	10 13	9 55	9 57	8 14	8 32	3
4	F	0 6	12 44	10 53	10 58	10 39	10 44	8 46	9 7	4
5	S	0 49	1 32	14 46	———	11 33	11 49	9 24	9 52	5
6	S	1 41	2 29	0 2	12 50	———	12 37	10 10	10 47	6
7	M	2 54	3 32	1 20	1 58	1 5	1 43	11 7	———	7
8	T	4 6	4 37	2 34	3 5	2 15	2 46	0 4	12 14	8
9	W	5 13	5 42	3 40	4 9	3 12	3 41	1 14	1 28	9
10	T	6 12	6 36	4 39	5 3	4 11	4 35	2 10	2 35	10
11	F	7 9	7 30	5 32	5 53	4 53	5 14	3 31	3 47	11
12	S	8 7	8 21	6 21	6 41	5 38	5 58	4 31	4 48	12
13	S	9 1	9 20	7 9	7 28	6 30	6 49	5 23	5 39	13
14	M	9 50	10 9	7 56	8 15	7 27	7 46	6 5	6 27	14
15	T	10 36	10 56	8 42	9 2	8 23	8 43	6 47	7 12	15
16	W	11 23	11 46	9 30	9 53	9 14	9 37	7 28	7 56	16
17	T	———	12 10	10 19	10 45	10 5	10 31	8 8	8 39	17
18	F	0 36	12 57	11 11	11 40	10 58	11 27	8 52	9 27	18
19	S	1 26	1 45	———	12 6	11 53	———	9 40	10 21	19
20	S	2 14	2 41	0 40	1 7	0 25	12 52	10 34	11 31	20
21	M	3 15	3 42	1 43	2 10	1 24	1 51	11 34	———	21
22	T	4 17	4 43	2 45	3 11	2 26	2 52	0 32	12 28	22
23	W	5 17	5 39	3 44	4 6	3 16	3 38	1 40	1 39	23
24	T	6 13	6 33	4 36	4 56	3 57	4 17	2 44	2 50	24
25	F	7 0	7 17	5 23	5 40	4 44	5 1	3 40	3 48	25
26	S	7 51	8 6	6 5	6 20	5 22	5 37	4 29	4 42	26
27	S	8 15	8 49	6 43	6 57	6 4	6 18	5 8	5 23	27
28	M	9 14	9 25	7 20	7 31	6 51	7 2	5 39	5 56	28
29	T	9 47	9 58	7 53	8 4	7 24	7 35	6 13	6 32	29
30	W	10 21	10 33	8 27	8 39	8 8	8 20	6 41	7 1	30

Compared with **NEW HAVEN,** High Water at **Sachem's Head** is 16 minutes earlier. **Bridgeport,** 4 minutes later. **Sheffield Island,** 16 minutes later.

Compared with **NEW LONDON,** (Light-House), High Water at **Navy Yard Site** is 22 minutes later. **Norwich,** 45 minutes later. **Little Gull Island,** 11 minutes later. **Saybrook,** 1 hour later.

High Water is 7 minutes earlier at **Watch Hill** than at **Stonington.**

High Water is 1 hour later at **Montauk Pt.** than at **Block Island.**

Greatest High Tide—at New Haven, 15th, A.M., 7.1 ft. above level of average low water. New London, 14th, A. M., 3.4 ft.

Smallest High Tide—at New Haven, 23d, P. M., 5.4 ft; at New London, 6th, A. M., 2.2 ft.

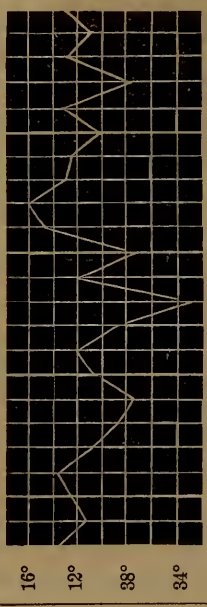
See General Tide Table.

METEOROLOGICAL RECORD.

AVERAGE.

D M	Bar.	Tem	Rel Hu
1			
2	30.07	45° .2	70.8
3			
4	30.07	44 .5	71.
5			
6	30.07	43 .8	71.1
7			
8	30.07	43 .1	71.2
9			
10	30.07	42 .3	71.4
11			
12	30.07	41 .6	71.5
13			
14	30.07	40 .9	71.6
15			
16	30.07	40 .2	71.7
17			
18	30.07	39 .4	71.8
19			
20	30.07	38 .7	72.
21			
22	30.06	38 .0	72.1
23			
24	30.06	37 .2	72.3
25			
26	30.06	36 .5	72.5
27			
28	30.06	35 .8	72.7
29			
30	30.06	35 .0	72.9

Comparative Temperature.



Prevailing wind, N. W.

Wet wind, S. E.

Dry wind, N. W.

Probable amount of rain, 4.37 in.

Greatest amount in the last twenty-four years (Middletown), 7.3 in.

Least amount in the last twenty-four years (Middletown), 1.8 in.

Probable highest temperature, 65.3°.

Probable lowest temperature, 15°.

Highest observed temperature, 74°.

Lowest observed temperature, 2°.

Comparative Rainfall.



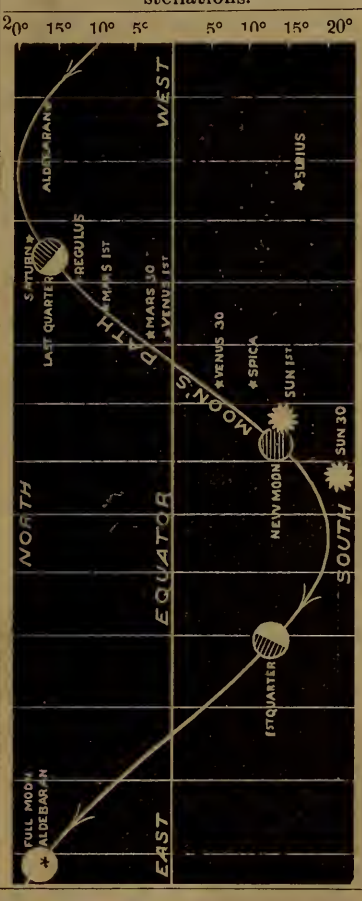
Church Days, Holidays, etc.	d.
All Saints	1
State Election	1
22d Sunday after Trinity	6
23d Sunday after Trinity	13
24th Sunday after Trinity	20
Thanksgiving	24
Advent Sunday	27
St. Andrew	30

Moon's Phases, etc.				
Last Quarter	8d	0h	2m	aft.
New Moon	15	3	8	morn.
First Quarter	22	5	43	morn.
Full Moon	30	10	20	morn.
Perigee	14	0	—	morn.
Apogee	26	4	—	morn.

In Eastern Time—that of the 75th Meridian west from Greenwich.

D. M.	D. W.	The Sun. Rises	Sets	The Moon. Rises	Sets
				Aft.	Morn.
		h. m	h. m.	h. m.	h. m.
1	Tu	6 23	4 47	5 39	6 48
2	W	6 24	4 46	6 13	7 47
3	Th	6 26	4 45	6 51	8 44
4	Fri	6 27	4 44	7 35	9 41
5	Sat	6 28	4 43	8 24	10 36
6	S	6 29	4 42	9 20	11 27
7	M	6 31	4 40	10 21	aft.
8	Tu	6 32	4 39	11 26	0 55
9	W	6 33	4 38	morn	1 35
10	Th	6 34	4 37	0 34	2 11
11	Fri	6 35	4 36	1 45	2 46
12	Sat	6 37	4 35	2 58	3 20
13	S	6 38	4 35	4 12	3 57
14	M	6 39	4 34	5 26	4 35
15	Tu	6 40	4 33	6 41	5 17
16	W	6 41	4 32	7 54	6 4
17	Th	6 43	4 31	9 2	6 57
18	Fri	6 44	4 30	10 3	7 54
19	Sat	6 45	4 30	10 56	8 54
20	S	6 46	4 29	11 40	9 54
21	M	6 47	4 28	aft.	10 54
22	Tu	6 48	4 28	0 53	11 54
23	W	6 50	4 27	1 22	morn
24	Th	6 51	4 26	1 50	0 52
25	Fri	6 52	4 26	2 17	1 49
26	Sat	6 53	4 25	2 44	2 46
27	S	6 54	4 25	3 11	3 43
28	M	6 55	4 25	3 41	4 40
29	Tu	6 56	4 24	4 13	5 39
30	W	6 57	4 24	4 50	6 38

Moon's Path among the Constellations.



The Sun.

At the beginning of this Month:

Day breaks 4.39.
Twilight ends 6.31.
Length of day 10h. 24m.
Sun at noon mark, 11.35 (see p. 4).
Sun is 14° S. of Equator; it rises 20° S. of E., and sets 20° S. of W.

During the Month:

The sun moves from the constellation Libra into Scorpio, as shown in the map.

It is 7° further south on the 30th than on the 1st.

The days grow 57 minutes shorter, the mornings decreasing 34 minutes, the afternoons 23 minutes.

The Moon.

New Moon may be first seen the 16th; it sets then 6.4 P. M., 25° S. of W.

The *best moonlight evenings* are between the 1st and 5th, and after the 22d; see also p. 12.

The map shows that the moon runs *furthest north* the 5th, and *furthest south* the 18th.

Also, that the moon passes north of Aldebaran the 3d; south of Saturn the 7th; north of Regulus the 9th; north of Spica the 12th; north of Aldebaran the 30th.

Astronomical Notes.

Venus claims especial attention this month on account of its unusual splendor. It rises, through November, more than 3½ hours before the sun; and when the moon is absent from the morning sky, the planet casts a distinct shadow. It also may be seen in full daylight: it crosses the meridian, at a point midway between horizon and zenith, shortly before 9 A. M. during the month, and may be observed to best advantage at that time. **Saturn** and **Mars** are also morning stars, rising November 1 at 10.29 P. M. and 1.26 A. M. respectively. As to the fixed stars: November 1, at 7 o'clock, **Vega** is northwest, at a considerable altitude; the great cross of **Cygnus** is northwest from the zenith; west southwest is **Altair,** midway between zenith and horizon; **Sagittarius** is setting, west of southwest; following it eastward, the zodiacal constellations Capricornus, Aquarius, Pisces and Aries, present no special features. Low down, southeast from Aquarius, shines the first magnitude star **Fomalhaut,** in the **Southern Fish.** In the northeast **Capella** is well up. Further east, the constellation **Taurus,** with the Pleiades, Hyades and Aldebaran, is above the horizon.

HIGH TIDE 1887 DECEMBER

D. M.	D. W.	New Haven. A. M.	New Haven. P. M.	New London. A. M.	New London. P. M.	Stonington. A. M.	Stonington. P. M.	Block Island. A. M.	Block Island. P. M.	D. M.
1	T	10 50	11 9	8 56	9 15	8 37	8 56	7 15	7 38	1
2	F	11 30	11 50	9 37	9 57	9 21	9 41	7 45	8 12	2
3	S	———	12 10	9 19	10 51	10 5	10 37	8 18	8 48	3
4	S	0 42	12 56	11 10	11 57	10 57	11 44	8 57	9 34	4
5	M	1 36	1 51	———	12 12	11 59	———	9 45	10 28	5
6	T	2 42	2 59	1 8	1 25	0 53	1 10	10 45	11 29	6
7	W	3 50	4 9	2 16	2 35	2 1	2 20	11 43	———	7
8	T	4 52	5 9	3 20	3 37	3 1	3 18	0 40	12 56	8
9	F	5 50	6 8	4 17	4 35	3 59	4 7	1 55	2 12	9
10	S	6 47	7 6	5 10	5 29	4 31	4 50	3 5	3 27	10
11	S	7 47	8 6	6 1	6 20	5 18	5 37	4 7	4 32	11
12	M	8 41	9 2	6 49	7 10	6 10	6 31	4 59	5 26	12
13	T	9 30	9 51	7 36	7 57	7 7	7 28	5 44	6 14	13
14	W	10 16	10 41	8 22	8 47	8 3	8 28	6 27	7 0	14
15	T	11 1	11 30	9 8	9 37	8 52	9 21	7 8	7 43	15
16	F	11 56	———	10 5	10 28	9 51	10 14	7 46	8 24	16
17	S	0 19	12 29	10 43	11 21	10 30	11 8	8 30	9 10	17
18	S	1 7	1 21	11 35	———	11 22	———	9 13	9 59	18
19	M	1 58	2 10	0 19	12 31	0 6	12 18	10 0	10 50	19
20	T	2 51	3 6	1 17	1 32	1 2	1 17	10 55	11 53	20
21	W	3 49	4 2	2 17	2 30	1 58	2 11	11 56	———	21
22	T	4 41	4 57	3 14	3 25	2 55	3 6	0 46	12 52	22
23	F	5 28	5 48	3 55	4 15	3 27	3 47	1 52	2 0	23
24	S	6 29	6 39	4 52	5 2	4 13	4 23	2 52	3 7	24
25	S	7 20	7 30	5 34	5 44	4 51	5 1	3 42	4 3	25
26	M	7 59	8 10	6 13	6 24	5 30	5 41	4 27	4 52	26
27	T	8 42	8 54	6 50	7 2	6 11	6 23	5 4	5 30	27
28	W	9 19	9 34	7 25	7 40	6 56	7 11	5 35	6 3	28
29	T	9 53	10 16	7 59	8 22	7 40	8 3	6 7	6 37	29
30	F	10 23	10 56	8 29	9 2	8 10	8 43	6 45	7 16	30
31	S	11 5	11 51	9 12	9 58	8 56	9 42	7 18	7 52	31

Compared with **NEW HAVEN**, High Water at **Sachem's Head** is 16 minutes earlier. **Bridgeport**, 4 minutes later. **Sheffield Island**, 16 minutes later.

Compared with **NEW LONDON**, (Light-House), High Water at **Navy Yard Site** is 22 minutes later. **Norwich**, 45 minutes later. **Little Gull Island**, 11 minutes later. **Saybrook**, 1 hour later.

High Water is 7 minutes earlier at **Watch Hill** than at **Stonington.**

High Water is 1 hour later at **Montauk Pt.** than at **Block Island.**

Greatest High Tide—at New Haven, 14th, A.M., 7.1 ft. above level of average low water. New London, 13th, A. M., 3.4 ft.

Smallest High Tide—at New Haven, 23d, P.M., 5.2 ft; at New London, 24th, P. M., 2 2 ft.

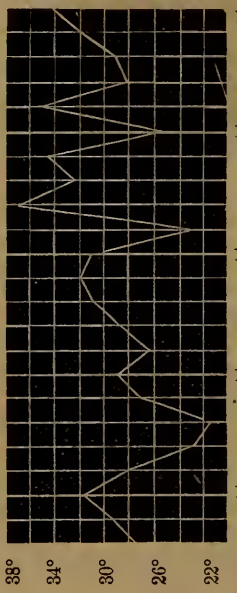
See General Tide Table.

METEOROLOGICAL RECORD.

AVERAGE.

D M	Bar.	Tem	Rel Hu
1			
2	30.06	34°.3	73.
3			
4	30.06	33 .6	73.2
5			
6	30.06	32 .9	73.5
7			
8	30.06	32 .3	73.7
9			
10	30.06	31 .7	73.9
11			
12	30.06	31 .1	74 1
13			
14	30.06	30 .6	74.3
15			
16	30.06	30 .1	74.6
17			
18	30.06	29 .6	74.8
19			
20	30.06	29 .2	75.
21			
22	30.06	28 .8	75.2
23			
24	30.07	28 .4	75.4
25			
26	30.07	28 .1	75.6
27			
28	30.07	27 .8	75.6
29			
30	30.07	27 .6	75.6
31			

Comparative Temperature.



Prevailing wind, N. W.
Dry wind, W.
Wet wind, S.
Probable amount of rain, 4 in.
Greatest amount in the last twenty-four years (Middletown), 8.3 in.
Least amount in the last twenty-four years (Middletown), 1.2 in.
Probable highest temperature, 51°.
Probable lowest temperature, 1°.
Highest observed temperature, 64°.
Lowest observed temperature, 24°.

Comparative Rainfall.



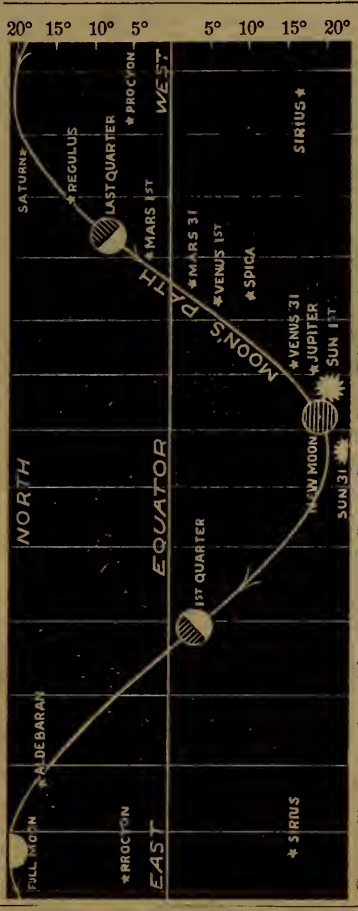
Church Days, Holidays, etc.	d.
1st Sunday in Advent	4
2d Sunday in Advent	11
3d Sunday in Advent	18
St. Thomas	21
Christmas Day	25
St. Stephen	26
St. John Evangelist	27
Innocents	28

Moon's Phases, etc.				
Last Quarter	7d	10h	11m	eve.
New Moon	14	2	21	aft.
First Quarter	22	2	1	morn.
Full Moon	30	3	14	morn.
Perigee	12	5	—	morn.
Apogee	23	11	—	eve.

In Eastern Time—that of the 75th Meridian west from Greenwich.

D. M.	D. W.	The Sun. Rises h. m.	The Sun. Sets h. m.	The Moon. Rises Eve. h. m.	The Moon. Sets Morn. h. m.
1	Th	6 58	4 23	5 32	7 36
2	Fri	6 59	4 23	6 20	8 32
3	Sat	7 0	4 23	7 15	9 25
4	S	7 1	4 23	8 14	10 13
5	M	7 2	4 23	9 17	10 57
6	Tu	7 3	4 23	10 24	11 36
7	W	7 4	4 23	11 32	aft.
8	Th	7 5	4 23	morn	0 47
9	Fri	7 6	4 23	0 42	1 19
10	Sat	7 7	4 23	1 52	1 53
11	S	7 8	4 23	3 3	2 29
12	M	7 9	4 23	4 16	3 7
13	Tu	7 9	4 23	5 29	3 51
14	W	7 10	4 23	6 39	4 40
15	Th	7 11	4 23	7 44	5 35
16	Fri	7 11	4 24	8 42	6 34
17	Sat	7 12	4 24	9 32	7 36
18	S	7 13	4 24	10 16	8 39
19	M	7 13	4 25	10 52	9 40
20	Tu	7 14	4 25	11 24	10 40
21	W	7 14	4 26	11 53	11 38
22	Th	7 15	4 26	12 20	morn
23	Fri	7 15	4 27	aft.	0 36
24	Sat	7 16	4 27	1 14	1 33
25	S	7 16	4 28	1 41	2 30
26	M	7 17	4 29	2 13	3 27
27	Tu	7 17	4 29	2 47	4 26
28	W	7 17	4 30	3 27	5 25
29	Th	7 18	4 31	4 14	6 23
30	Fri	7 18	4 31	5 7	7 19
31	Sat	7 18	4 32	6 6	8 10

Moon's Path among the Constellations.



The Sun.

At the beginning of this Month:

Day breaks 5.16.
Twilight ends 6.5.
Length of day 9h. 25m.
Sun at noon mark, 11.41 (see p. 4).
Sun is 22° S. of Equator: it rises 30° S. of E., and sets 30° S. of W.

During the Month:

The sun moves from the constellation Scorpio into Sagittarius, as shown in the map.

It is 1° further south on the 31st than on the 1st.

The days grow 11 minutes shorter, the mornings decreasing 20 minutes, the afternoons increasing 9 minutes.

The Moon.

New Moon may be first seen the 16th: it sets then 6.34 P. M., 27° S. of W.

The *best moonlight evenings* are between the 1st and 4th, and after the 22d: see also p. 12.

The map shows that the moon runs *furthest north* the 2d and 30th, and *furthest south* the 15th.

Also, that the moon passes south of Saturn the 5th; north of Mars the 8th; north of Spica the 10th; north of Venus the 11th; north of Aldebaran the 27th.

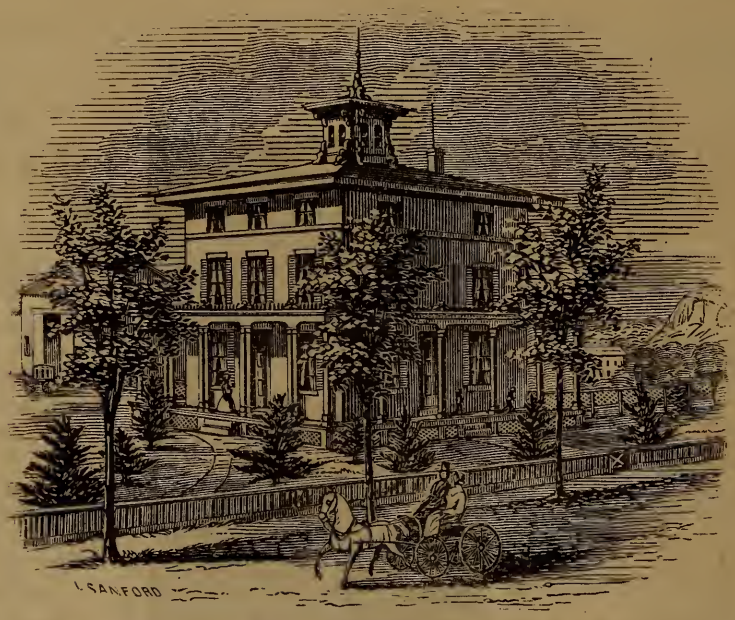
Astronomical Notes.

Venus is still very brilliant, and by far the brightest morning star, rising during the first two weeks at the unusually great interval of four hours before sunrise: it traverses Libra, and December 20 is 2½ degrees due north of Alpha. **Saturn** is still ranked as morning star, though it rises at the close of the month at the end of twilight. A notable event this month is the conjunction of **Jupiter** and **Mercury:** in the morning sky of the 4th they will appear but 1½ degrees apart. Mercury is very well situated for observation during the first two weeks of the month. **Mars** as morning star is slowly increasing in brightness and rises due east before 1 A. M. The brilliant winter constellations are appearing again in the east: at 8 P. M., December 1, **Capella** appears high in the northeast; **Gemini** is well above the horizon north of east, **Orion** is above the horizon south of east, and **Taurus** with the **Pleiades** and **Hyades** and the bright star **Aldebaran** is high up in the east. The moon occults Aldebaran in the evening sky of December 27. One of the finest astronomical exhibitions of the month will be the appearance of the crescent moon close to Venus in the morning sky of December 11th, the moon and planet rising together.

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GENERAL TIDE TABLE.

HIGH TIDE IN EASTERN TIME AT THE FOLLOWING PLACES

May be found approximately for each day by adding to or subtracting from the Time of **High Tide at New Haven** *the hours and minutes annexed in the column headed* **Time.** *To find the Time of Low Tide, add to the Time of High Tide the hours and minutes annexed in the column headed* **Duration of Fall.**

Place.	Time.	Average Height.	Duration of Rise.	Duration of Fall.
	h m	ft.	h m	h m
Albany, N. Y.	add 6–34	2.3	4.26	7.59
Annapolis, Md.	add 5–52	0.9	6.11	6.14
Atlantic City, N. J.	sub. 3–29	3.6	5.53	6.32
Baltimore, Md.	add 7–49	1.3	5.53	6.32
Bar Harbor, Me	sub. 0–49	.10	6.15	6.10
Beaufort, S. C.	sub. 2–50	7.3	6.07	6.18
Boston, Mass	sub. 0–45	7.8	6.12	6.13
Bristol, R. I.	sub. 3–21	4.7	7.23	5.02
Cape May, N. J.	sub. 2–55	4.8	6.11	6.14
Charleston, S. C.	sub. 3–28	5.1	6.16	6.09
Edgartown, Mass.	add 0–45	2.0	6.53	5.32
Eastport, Me.	sub. 0–38	18.2	6.01	6.24
Great Peconic Bay.	sub. 0–11	2.5	6.27	5.58
League Island, Penn.	add 2–03	6.1	5.06	7.19
Marblehead, Mass.	sub. 0–27	9.3	6.12	6.13
Nahant, Mass.	sub. 0–25	9.4	6.12	6.13
New Bedford, Mass.	sub. 3–09	3.7	6.47	5.38
Newburyport, Mass.	add 0–05	7.5	5.51	6.34
Newport, R. I.	sub. 3–41	3.9	6.30	5.55
New York:				
Governor's Island.	sub. 3–01	4.4	5.54	6.31
Ward's Island.	sub. 1–30	5.1	6.23	6.02
Norfolk, Va	sub. 2–09	2.3	6.08	6.07
Old Point Comfort, Va.	sub. 2–28	2.5	6.27	5.58
Oyster Bay, L. I.	add 0–02	7.3	6.05	6.20
Philadelphia, Penn.	add 2–28	6.0	5.06	7.19
Plymouth, Mass.	sub. 0–05	6.4	6.11	6.14
Point Judith, R. I.	sub. 3–56	3.1	6.13	6.12
Portland, Me.	add 1–20	9.1	6.15	6.10
Portsmouth, N. H.	sub. 0–09	8.6	6.20	6.05
Poughkeepsie, N. Y.	add 1–14	3.2	5.41	6.44
Providence, R. I.	sub. 3–14	4.5	7.10	5.15
Richmond, Va.	add 5–48	3.6	5.13	7.12
Rockland, Me.	sub. 0–34	9.6	6.19	6.06
Salem, Mass.	add 0–12	9.2	6.19	6.06
Sag Harbor, L. I.	sub. 1–08	2.3	6.15	6.10
Sandy Hook, N. J.	sub. 3–49	4.7	6.08	6.17
Savannah, Ga.	sub. 3–33	6.9	5.51	6.34
Vineyard Haven, Mass.	add 0–10	1.6	6.52	5.33
Washington, D. C.	add 8–53	2.8	5.36	6.49
West Point, N. Y.	sub. 0–18	2.7	5.22	7.03
Wilmington, N. C.	sub. 2–02	2.7	4.45	7.40
Wood's Holl, (North) Mass	sub. 2–54	1.6	5.16	7.09
Wood's Holl, (South) Mass.	sub. 3–29	4.0	6.52	5.33

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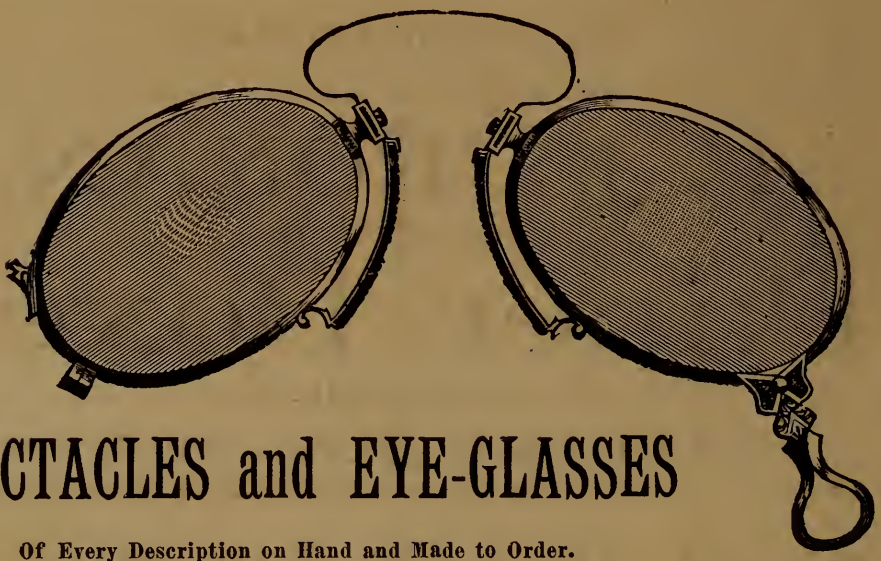
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METEOROLOGICAL.

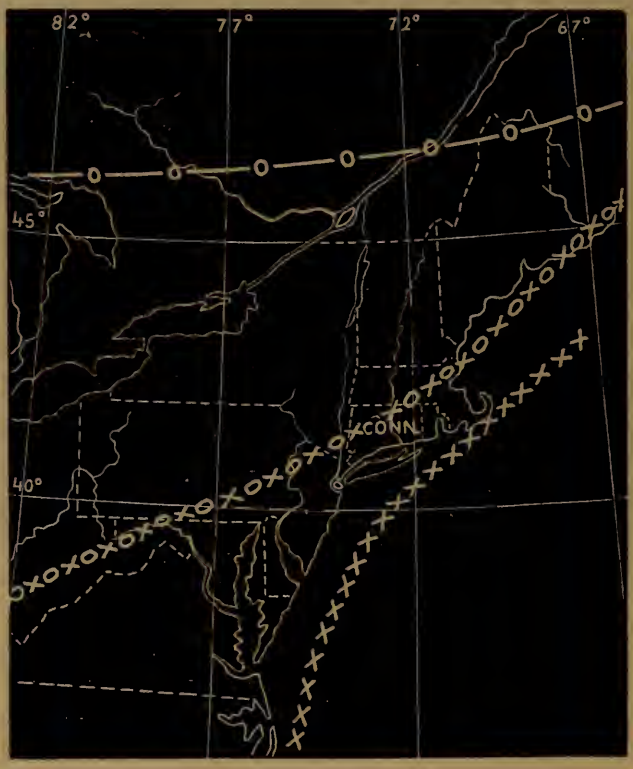


Weather.—The weather experienced over a large portion of the earth is intimately connected. The distribution thereof in a storm is represented in the annexed figure, such an area covering the greater portion of the United States. The center, marked Low, being frequently at the great lakes, while the edge is at the sea coast. Around a central area of low barometer is arranged warm, rainy weather, with the barometer falling; cold, cloudy or clearing weather, with the barometer rising; cold, calm, clear or cloudy weather, with the barometer high.

The winds, represented on the chart by arrows, flow in and around the center, so that an observer, placing his back to the wind, would find the center very nearly in the direction of his left hand. . At the center the winds are nearly calm, but increase in violence as we approach the high barometers, reach a maximum velocity about half way between the high and low areas, and fall to light variable winds at the high areas. The first indications of the advancing disturbance are the color of the sky and clouds. The first blue under the high barometer becomes gradually whiter, and finally merges in the cloud mass a little in advance of the low. The clouds also, from being light feathery cirrus on the extreme outskirts of the cloud area, become gradually more and more dense until they become dark rain-clouds a little in advance of the center. These disturbances, whether thunder shower or storm, with the phenomena retaining their relative positions, travel over this section of the earth in a fairly constant direction (represented by the long arrows), from west to east, in one of three

fairly well defined paths, and at about the speed of a railway train; about 26.1 miles per hour for this country and 15.5 miles per hour for Europe.

The simultaneous observations of the Signal Service, enable us to place the geographical distribution of the paths as shown in the following figure. The corresponding marks upon the preceding figure represents the successive positions of New Haven in the storm, and indicate the sequence of weather to be expected. 44 per cent. of our storms belong to the class whose centers travel in the path —o—o—o—. They occur in every month of the year, but most abundantly in the months of March and April; least frequently in the months of June and July. With regard to their centers, Connecticut would occupy the successive positions represented upon the figure showing the storms by the line — o — o — o —. Such a storm would probably pass unnoticed. New Haven being at 1, we would have a fair day, warm, clear weather with little or no wind. During the day the sky would begin to cloud over and when New Haven reached position 2 the sky would be overcast and lowering. The wind blowing from the south, southwest, veering to west, and not over strong. While New Haven is passing from 2 to 3 there may be light rains. The weather becomes colder, the wind veers toward the northwest and the sky becomes clear by the time New Haven is at 3. Storms of this class have been followed around the world. While affecting Connecticut but little their force is felt along the St. Lawrence, on the banks and off Cape Farewell.



Twenty-six per cent. of our storms belong to the class whose centers travel in the track marked o × o × o ×. These usually begin in the Southern Mississippi Valley and pass northwesterly joining the storms belonging to the more northern track on the banks and off Cape Farewell. With regard to their centers Connecticut occupies successively the positions marked o × o × o × o × or the figure depicting a storm. When at position 1, New Haven would experience a warm day, light wind, clear sky, a day commonly known as a weather breeder. Shortly the wind would freshen from the south veering to the southeast. The sky gradually becomes overcast and lowering. By the time New Haven reaches position 2 rain would begin to fall somewhat sharply, but not for a very long interval, perhaps twelve or twenty-four hours. By the time New Haven has reached "LOW," the sky is clear, the wind light, the storm apparently over. At 3, the northwest wind has sprung up and "cotton

bales," with slight showers, gradually giving way to clear, cold weather at 4. These storms occur most abundantly in March and April, and are almost wanting from June to September. On an average six occur in a month.

Thirty-two per cent. of our storms belong to the class whose centers travel in the path marked x x x x x x x x x. These are most frequent in May and November, and are wanting in June and July. A portion have their origin in Mexico and follow up the coast, and a very slight number belong to the West India cyclones. As regards these, Connecticut successively occupies positions upon the line x x x x x in the figure heading the article. Following a day of fair weather comes an overcast sky and a southeasterly to easterly wind. The rain falls very sharply. Two inches in a single fall not being unusual. The wind veers to the northeast. The rain falls in a few sharp showers and drizzle and gradually yields to the fog or overcast sky, the wind dying out.

There are then *three sequences of weather which we usually experience. The one begins with a southwesterly wind, slightly cloudy weather and ends with a westerly wind, yielding nothing very inclement. The second begins with a southeasterly wind, develops into a full storm and passes away in clearing weather and a northwest wind. The third begins with an easterly or northeast wind, yields abundant precipitation and passes away in fog and rain.*

If each sequence ran its course and was followed by another it would be a comparatively easy matter to predict the weather for two or three days. Since, however, the low centers on different paths run into each other and modify the phenomena, twelve hours is perhaps the attainable limit, with a good guess at twenty-four or thirty-six. It is, perhaps, safe to consider that low centers in path o x o x will overrule those in path — o — o —and those in path x x x x overrule those in path — o — o — o.

Those storms whose centers move to the south of us begin with an easterly or northeasterly wind. From the moment the wind begins to blow till cloudy weather begins is on the average 20^h. The cloudy weather lasts 17^h 6, after which 31^h of rain follow. Though this is very variable and in some cases may be doubled. About 20^h 5 of foggy, drizzling or clearing weather follow.

Those storms which pass over us almost centrally, consist on the average of 14^h of clear weather after the wind begins to blow, followed by 13^h 4 of cloudy weather, 15^h 6 of rain and 15^h 4 of clearing weather.

Those storms whose centers pass to the north of us afford 9^h of clear weather, 8^h of cloudy, 8^h 3 of rain and 14^h of clearing.

Duration or Different kinds of Weather in the Different Storms.

*Critical Winds.	Clear.	Cloudy.	Rain.	Clearing.
E. to NE.	20.	17.6	31.	20.5
S. to SE.	14.	13.4	15.6	15.4
S. to SW.	9.	8.	8.3	14.

The following general rules may be of assistance:

Sunset Colors.—A gray, lowering sunset, or one where the sky is green or yellowish green, indicates rain. A red sunrise, with clouds lowering later in the morning, also indicates rain.

Halo (Sun Dogs).—By halo, we mean the large circles or parts of circles about the sun or moon. A halo occurring after fine weather, indicates a storm. These indicate a storm following the path oxoxox.

Corona.—By this term we mean the small colored circles frequently seen around sun or moon. A corona growing smaller indicates rain; growing larger, fair weather.

Rainbows.—A morning rainbow is regarded as a sign of rain; an evening rainbow, of fair weather.

Sky Color.—A deep blue color of the sky, even when seen through clouds, indicates fair weather; a growing whiteness, an approaching storm.

Fog.—Fogs indicate settled weather. A morning fog usually breaks away before noon.

Visibility.—Unusual clearness of the atmosphere, unusual brightness or twinkling of the stars, indicate rain.

Clouds.—In observing clouds, we observe their kinds, motions and outlines. The clouds frequently called "mare's tails" we term cirri. They are marked by their light texture, fibrous and sundered as in the "mare's tail," or interlacing, as in the far-spreading white cloud, which produces the halo. Small, regularly formed groups of these clouds are frequently seen in fair and settled weather. The cirri are also the clouds on the fore part of the storm. In this case they are usually more abundant, their outline is very ragged, and they gradually blend into a white, far-reaching cloud-bank.

* The first moment of clear is the first moment the critical wind is noticeable.

The cloud well-known as "cotton bales," or "thunder heads," we term cumulus. When they appear during the heat of the day and pass away in the evening, continued fair weather may be expected. When they increase with rapidity, sink into the lower part of the atmosphere, and remain as the evening approaches, rain is at hand. If loose patches appear thrown out from their surfaces, showers may be expected.

The clouds usually seen after nightfall, lying in one horizontal plane, and not of great extent, are attendant on fine weather. Small, black, inky clouds and dark scud indicate rain.

Barometer.—In using the barometer, we should notice whether it be greatly above or below the mean height and the rapidity of its rise or fall. If it be higher and steady, continued fair, though not cloudless weather may be expected. If it be lower and falling, rain, or at least damp, cloudy weather is at hand. A rapid rise or fall, (greater than 0.01 inch per hour), indicates continued unsettled weather and much wind.

Thermometer.—Extensive rainfalls are usually preceded by a temperature higher than the mean. Hence, if the temperature, after being corrected for diurnal variation, is found above the mean, and if its difference increases, it is also an indication of rain. In order to eliminate the diurnal variation, we give, in an adjoining table, the mean correction to be added to an observation at any hour. After the storm has passed, often before it has begun to clear, the temperature falls below the mean.

Hygrometer, Hygroscope.—These instruments indicate the amount of moisture in the air, and furnish us with a valuable addition to our means of predicting rain. The instruments vary from an accurate measure to a mere indication. Of the latter class—certainly as economical, and probably as accurate as any—is a bit of light-colored paper sprinkled with a saturated solution of salt. In dry weather the spots disappear, in usual weather they are discernable, in wet weather they are very plain.

Spectroscope.—If the ray of light, which has passed through the earth's atmosphere, be analyzed by means of a prism, the spectrum is found crossed by a number of dark lines, several of which become broader and less defined, the more likely it is to rain. A little practice and good judgment render the indications of much value.

Frost.—The first frost and last frost are usually preceded by a temperature very much above the mean.

Corrections to be added to the temperature at any hour to reduce it to the mean of the day.

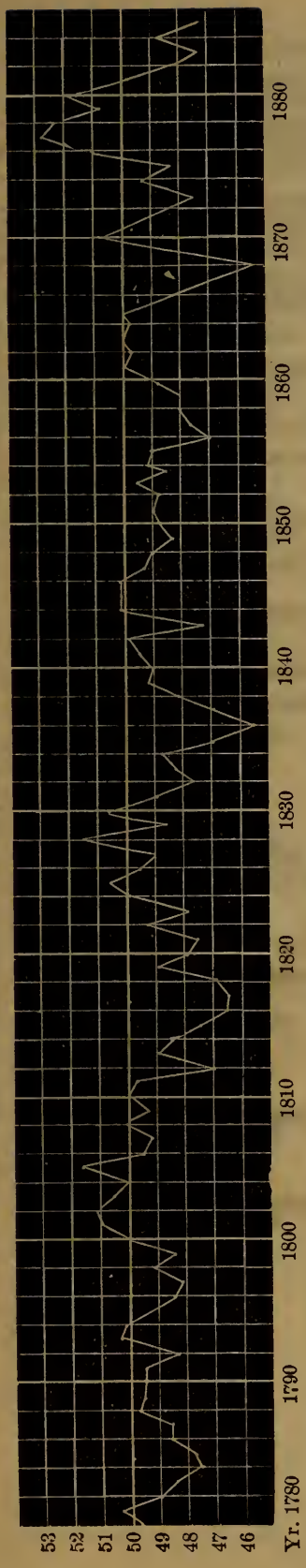
Hours.	Jan.	Feb.	March	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Midn'ht	2.3°	2.9°	3.7°	4.6°	5.4°	5.8°	5.2°	4.7°	4.8°	4.1°	2.6°	2.2°
2	3.0	3.8	4.8	6.1	7.2	8.0	7.0	6.3	6.3	5.5	3.7	2.8
4	3.7	4.8	5.8	7.3	8.5	8.9	7.7	7.2	7.2	6.5	4.5	3.5
6	4.3	5.3	6.1	7.1	6.6	6.1	6.1	6.4	6.8	6.6	4.8	4.0
8	3.8	3.7	2.3	2.0	0.5	0.0	0.9	1.3	1.7	2 3	3.0	3.2
10	—1.6	—2.5	—3.2	—3.9	—4.3	—4.7	—3.8	—3.4	—3.8	—3.5	—2.2	—1.6
Noon.	—5.2	—5.6	—6.1	—6.8	—7.0	—7.1	—6.7	—6.5	—6.9	—7.0	—5.6	—5.0
2	—6.3	—6.9	—7.5	—8.3	—8.5	—8.3	—7.8	—7.7	—8.0	—8.1	—6.6	—6.1
4	—4.7	—5.8	—6.6	—7.8	—8.0	—7.6	—7.2	—7.1	—7.1	—6.6	—4.6	—4.0
6	—1.4	—2.0	—2.5	—4.0	—4.7	—4.3	—4.2	—3.9	—4.0	—2.8	—1.6	—1.0
8	0.5	0.4	0.6	0.6	0.6	0.1	—0.1	0.0	0.1	0.2	0.4	0.5
10	1.5	1.8	3.4	3.0	3.5	3.3	2.9	2.8	2.8	2.4	1.6	1.5

The following cuts represent the flags in use where **WEATHER SIGNALS** are displayed :



	No. 1.	No. 2.	No. 3.	No. 4.
White flag Red center	Higher Temperature.	Lower Temperature.	Stationary Temperature.	.....
White flag Blue center	General Rain or Snow.	Clear or Fair Weather.	Local Rain or Snow.	.....
White flag Black center	.....	.....	.....	Cold Wave.
Red flag Black center	.....	.....	.....	Storm Signal or Strong N.W. Wind.

Flags will be hoisted daily at 7.30 A. M.; the weather forecasts indicated by them cover a period of twenty-four hours. Flags should be read from the top of staff downward; when strung horizontally begin with end showing red flag. Example, Nos. (1 Red), (1 Blue), (2 Blue), (4 Blue), at one hoist, indicate higher temperatures and general rain or snow, followed by clear, cold weather.



In the cuts we have given the yearly mean temperature from 1780 to 1885, and annual rain-fall from 1804 to 1885. It will be seen that in the temperatures there is at least no permanent change. In the rainfall it is probably only apparent. There is certainly no change of climate. In the monthly record will be found, also, the temperature and rainfall for each month. It will be seen to be still more variable, but yet without constant change. The causes upon which the variations depend have not yet been fully ascertained.

Following of Seasons.

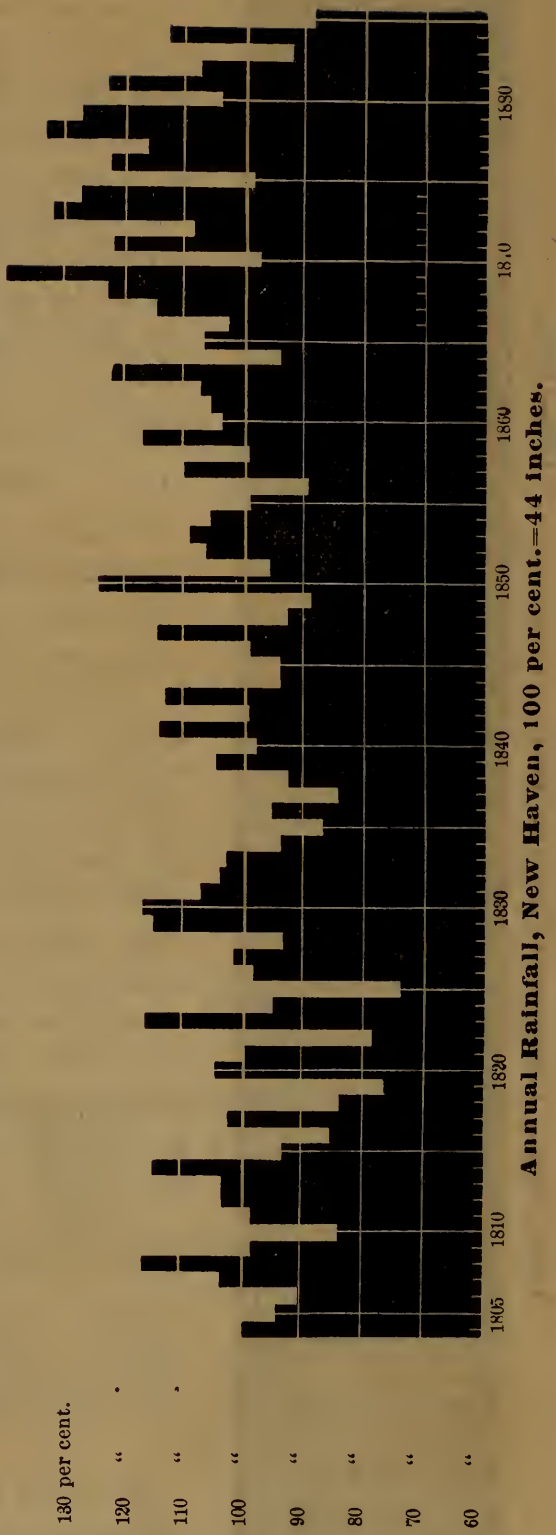
A study of the monthly means leads to the conclusions that the causes which affect the mean temperature of the year affect, also, the mean temperature of the seasons, or a cold winter is apt to be followed by a cold summer. It seems likely that we may speak similarly of the rain-fall. The most critical point depending upon the variation in temperature of the season is the first and last frost, the first and last snow. The average earliest and latest dates are given in the annexed table. Some judgment, not over definite, of the probable date may be formed from the experience of the former months: thus, if the mean temperature of July and August were above the mean by two degrees, the first frost might be expected as late as October first.

	Average Date	Earliest	Latest
First snow of winter	Nov. 25	Nov. 1	.....
Last snow of winter.....	March 29	.....	April 28
First frost of autumn.....	Sept. 21	Aug. 22	Oct. 14
Last frost of spring.....	May 19	May 1	June 12
The blooming of apple trees...	May 12	May 1	June 1
The blooming of peach trees..	May 12	April 14	May 20

The date of the first and last frost or snow will be brought forward or carried backward by the occurrence of the first heavy storm near the average date.

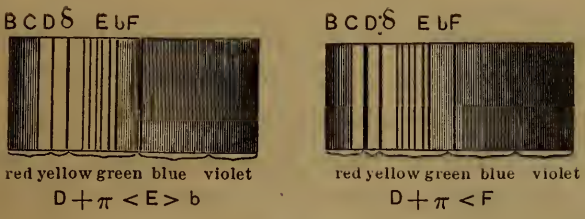
Thunder Storms.

Thunder storms are apt to occur wherever warm, moist ascending currents meet with cold descending currents. They are usually preceded by a warm, stifling atmosphere and attended by cumulus. Twelve or thirteen hours in advance they are announced by a stratus having innumerable tufts or turrets on the top. They are of the same nature as the storms described before, but much more limited in extent. They are apt to follow, in a general way, a large valley running from an easterly to a westerly direction. They are most likely to occur from 3 to 4 P. M.; least likely from 4 to 5 A. M. Hail is most likely to occur from 10 to 12 M.; least likely near midnight. Occurrences between 6 P. M. and 6 A. M. are very rare.



The Rain Band.

Water vapor does not allow certain rays of light to pass through it. When one looks through the spectroscope, he sees the different sorts of light placed side by side. If the light which comes through the spectroscope has passed through water vapor, these certain kinds of light are cut out of the spectrum; as it were, one sees only dark lines. These dark spaces constitute the rain band. By the greater or less blackness of these lines, one may judge of the amount of water vapor present, with an accuracy proportional to his experience. The amount of water vapor considered with the temperature, gives a very fair indication of the probability of rains.



The novice must not expect to see much at first. With the instrument in adjustment, a dark line will be seen between the red and yellow; this line is known as D, and in the green, rather nearer the blue end of the green, is another dark line known as E. A short distance still further in the green is a distinct thick line known as b and still further near the blue a dark line F. Between D and E will be seen a number of fine lines and a dark nebulous band known as δ which by the novice is often mistaken for the rain band. The lines D. E. b. F. form a scale by which one may measure the intensity of the rain band, and hence the probability of rain.

The rain band will be found on the side of D towards the red. Generally it will appear simply as a blur. The intensity of D and the rain band together is generally known as D + π.

As a general rule when D + π is darker than F, rain may be expected within a few hours, if it is fainter than b, the probability is no rain during the next twelve hours.

The thin lines in the green form an additional sign. If visible, they represent a dry day, or in its season, snow.

In observing, it is well to look at a spot of sky near the horizon at about the same hour each day, say 9 A. M., and to note down one's observations at the time. Compare these with the weather following. Experience will soon yield a trustworthy prediction.

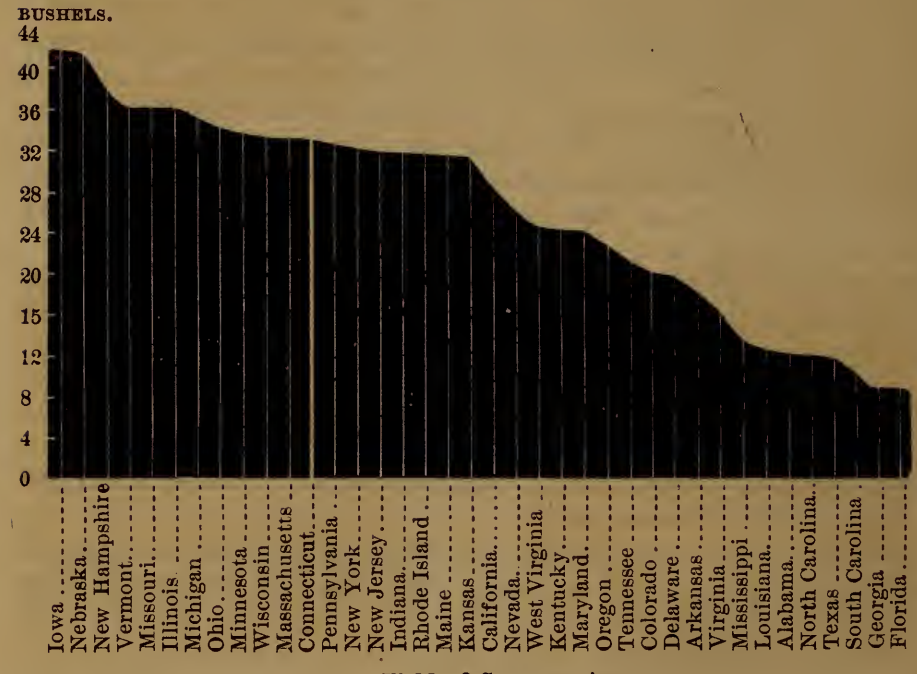
The following table given by an expert observer may be of assistance, but cannot replace experience.

Intensity of Rain Band.	Temperature.	Prediction.
D + π less than b	———	No rain
Less than b	Below 40° F	Possibly snow
Equal to b	Below 40° F	Rain
Equal to b	From 40° to 45°	Probably rain
Equal to b	From 45° to 50°	Probably no rain
Equal to b	Above 50°	No rain
Greater than b and less than F	Below 45°	Probably no rain
	Above 45°	No rain
And with thin lines also distinct	Below 60°	No rain
	Above 60°	Probably no rain
Equal to F	———	Rain
Greater than F	———	Much rain

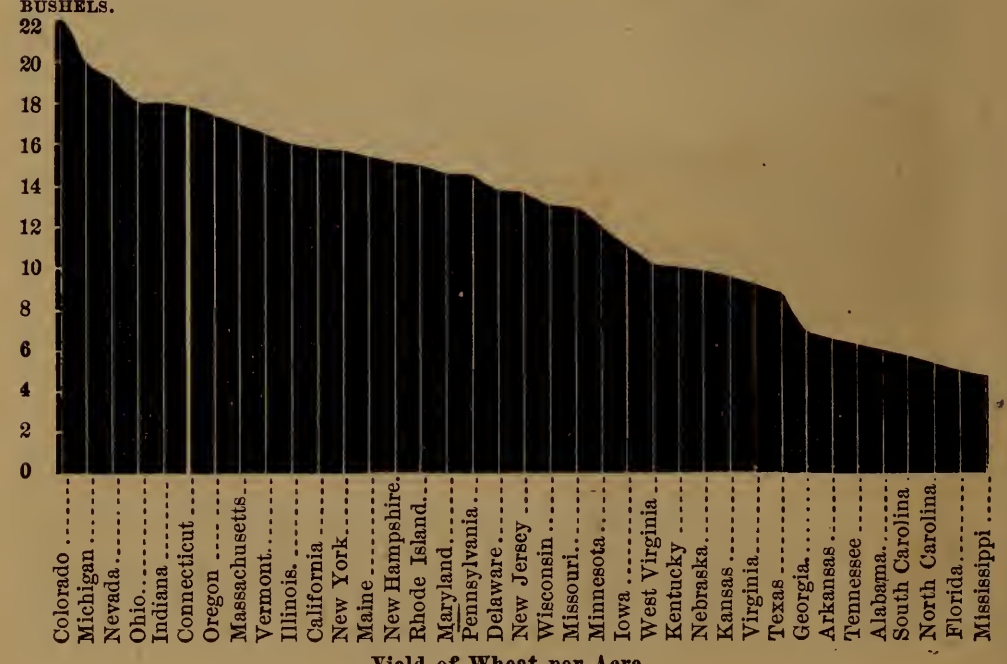
Table showing the number of cloudy, clear and rainy days in each month.

	Jan.	Feb.	Mar.	April	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Clear.....	11.0	9.8	11.0	10.3	9.6	10.0	11.2	10.8	12.7	12.0	10.3	10.0
Cloudy.....	11.0	9.9	10.8	10.4	11.5	11.0	11.1	10.3	10.4	12.0	11.9	11.7
Rain or Snow.....	9.2	8.2	9.1	9.2	9.8	8.8	8.4	8.1	6.8	6.8	7.8	9.2

The three large diagrams show the relative rank of Connecticut among the other states in the production of the leading cereals, in the proportion of land under cultivation, and in the advantages which acrue to the farmer from the city and village population with which he is surrounded. From the first two it is seen that the soil is better capable of producing than many of the other states. The third shows that this state is almost one large farm.



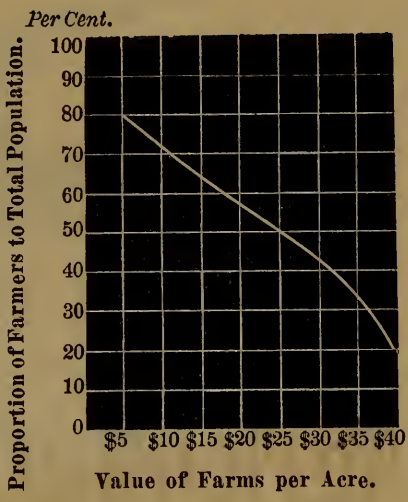
Yield of Corn per Acre.

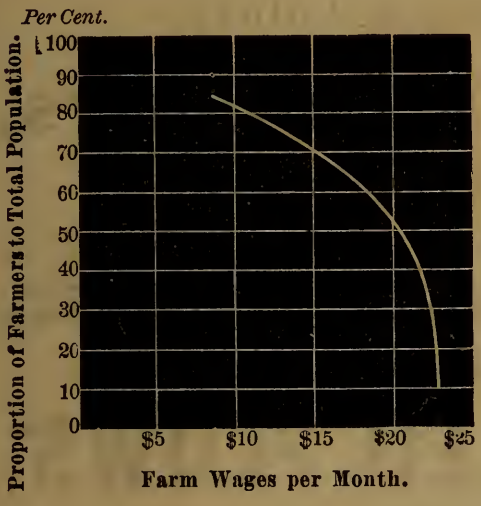


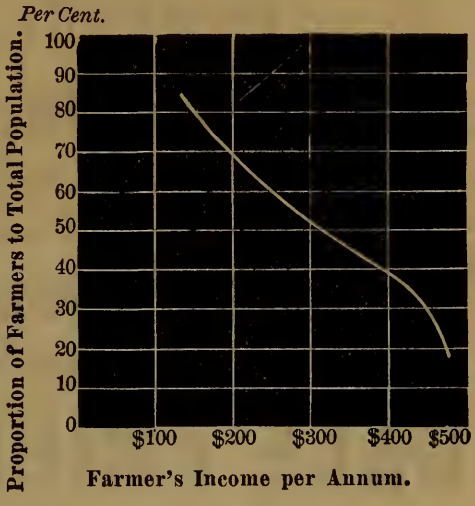
Yield of Wheat per Acre.

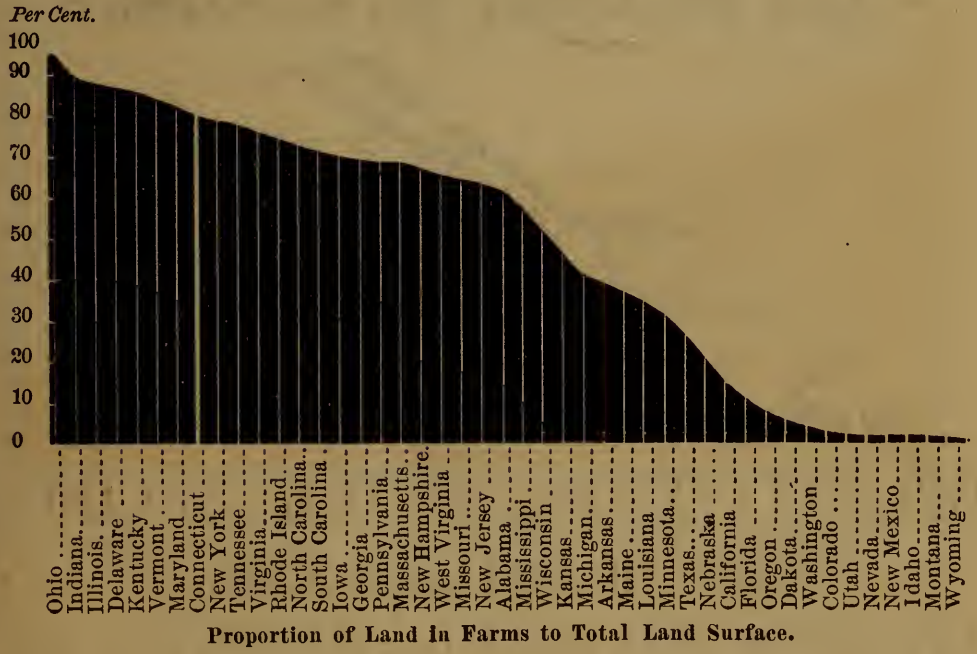
The three small diagrams on this page show the advantages to the farmer and farm laborer in States like Connecticut, where the farming population is a small proportion of the total population.

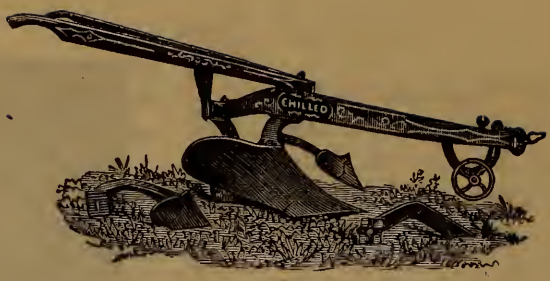
The effect of the city and village population, as shown by these cuts, is to increase the farmer's income several hundred dollars per year, the value of his farm some thirty dollars per acre, and to more than double the wages of his laborers.











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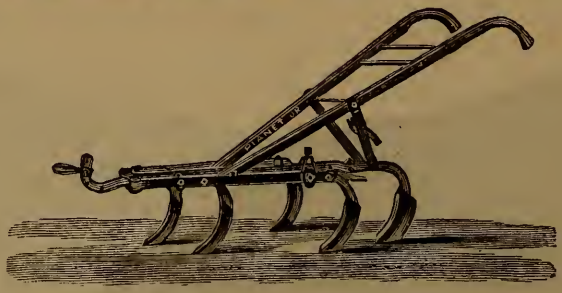
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Town Names in Connecticut.

By FRANKLIN B. DEXTER.

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That is a sound and suggestive sentence of Dr. Johnson's in which he declares that "Life is surely given us for higher purposes than to gather what our ancestors have wisely thrown away, and to learn what is of no value but because it has been forgotten." But while this protest against fruitless antiquarianism may be justified, it is fair to remember that in every growing community actions and motives underlying them are thrown aside and apparently forgotten, which nevertheless bear good fruit and are worth recovering, when history comes to be written, for the light they cast on the methods and aims and daily surroundings of founders of States. In this spirit I desire to trace a few of the side-lights that fall on Connecticut history from the names given in successive generations to the incorporated townships of the State.

I admit at the outset that these names betray almost no trace of the greater outward events which have been acted on the soil, almost no trace of the political struggles and divisions which have agitated the community; the themes which they illustrate are rather the force of local attachments and of national pride, and the gradual expansion of an independent people from weakness to full strength.

We shall see, too, that this absence of political color is itself full of significance, bearing direct witness to that spirit of diplomatic caution and restraint which characterized throughout the colonial history of Connecticut,—especially if viewed in contrast with the elder colony of Massachusetts.

To illustrate my meaning by a single example;—there is no doubt that our earliest settlers, busily building new homes in the wilderness in the days of successful resistance to Charles I. and of parliamentary rule in England, sympathized to the full with the new order of things there; but we search in vain for any evidence of this sympathy in the names adopted for their new abodes, as they listened to the distant echo of those victories. Meantime, in Massachusetts, the towns of Reading, and Hull, and Manchester, received their names in prompt commemoration of Parliamentary successes; and I take it that the omission of a like commemoration in Connecticut was studied, not accidental, and is expressive of a slightly different attitude from that of Massachusetts towards English authority.

In the study of history the things left undone and unattempted are sometimes as instructive and as significant as the things actually done or aimed at.

But if we are not to look for any marked display of party feeling or reference to passing interests, in this connection, what other guiding principle remains to be discovered? The answer is easily anticipated, that the names with which the emigrants from Old England were familiar at home were the chief source of supply for the new localities; we should expect this to some extent; yet I doubt if we are prepared at first thought for the remarkable attachment shown in this method for the old home. Remember that only four or five years after 1637, when the General Assembly of Connecticut named its first batch of towns (Hartford, Windsor and Wethersfield), emigration from Old England to New England came comparatively to a stand-still, in the near prospect of Puritan ascendency at home, and was not renewed to any considerable extent until within the last century;—and yet, for a hundred years following 1637, more than two-thirds of the names bestowed on the successive new townships and parishes in this colony were faithful reproductions of English originals.

Or, to extend the comparison to a longer period, it may well surprise us to find that out of almost exactly one hundred names given by public authority to prospective townships in this State, before the Declaration of Independence, at least fifty-seven were taken directly from British sources; if I have counted

aright, seventeen of the remainder were owing to obvious pecularities of natural location (as Waterbury, Middlefield), ten were mere variations or combinations of already existing names, usually by geographical adjuncts (as East Haddam, North Haven), eight were of Biblical origin, three were from names of Americans, founders or early settlers, two were borrowed from names in the colony of Massachusetts Bay, and the remaining three can hardly be classified.

The comparative looseness of the tie binding Connecticut during all these years to the mother country is evidenced by the fact that for the same period in the two elder colonies of Virginia and Massachusetts, the proportion of place-names from English sources was far greater than with us.

The general conclusions may be made more clear by taking instances in detail, and for this purpose the history may be separated into a few well-marked periods.

And first, it is enough to mention the fact that in the earliest period, that extending down to 1665, there were two entirely distinct colonies existing within the territory of the present State of Connecticut.

The elder, a direct outgrowth from the colony of Massachusetts Bay, had migrated in three bands (which live before us to this day in three vines on the seal of the State) to the towns of Hartford, Windsor, and Wethersfield, in the Connecticut Valley. It had borrowed from that valley the musical Indian name of Connecticut, which means "beside the long tidal river," and forming a combination with the fort planted at the river's mouth, Saybrook, by the agent of some London proprietors, had increased at the date mentioned, 1665, to a dozen plantations (of which Hartford was the capital), most of them still on or near the river, but others (Norwalk, Fairfield, Stratford, New London) ranging in either direction along the line of the Sound. Moreover, a few less organized settlements beyond these, towards what is now New York, and a larger number on the Long Island shore, had owned allegiance to Connecticut.

As a whole, the colony was of pure English blood, homogeneous therefore, thrifty, orderly, and religious, not so much under the control of a few autocratic leaders as its model, Massachusetts Bay, but exhibiting a more simple democracy, with a nearer resemblance in some essential points to the modern spirit than we find in either of its chief contemporaries.

The second of the two colonies within the present State limits, had its centre at, and took its name from New Haven, its first town, in time, in numbers, and importance; it embraced also the neighboring Guilford, Branford and Milford, together with Stamford and Greenwich (separated from the rest by some of the Connecticut settlements), and last of all, Southold on the opposite Long Island shore.

This colony, though organized by men of high religious character and of abundant pecuniary resources, had been unfortunate in all its history. Unfortunate at first in the time of its beginning, transplanted at a date when the hope of Puritan England was all on this side of the Atlantic, but scarcely set in operation when the turn of public affairs at home concentrated on that side the water all the Puritan interest, New Haven especially suffered from this withdrawal of expected emigration and capital, while Massachusetts Bay, already firmly rooted by ten years of unprecedented growth, and the Hartford colony, its healthy offshoot, were better equipped for meeting such a crisis. Later on, disastrous commercial ventures, embroilment with their Dutch neighbors, and a certain uncompromising rigidity of Puritanism, which reached its culmination here, and which after the Restoration challenged inevitably the interference of the English government,—these and kindred incidents marked the feeble colony for early extinction.

A reference to the map for the location of each, will show, perhaps more clearly than any explanation of their different development, how predestined was the absorption of the younger and weaker colony by the elder and stronger one at Hartford.

Meantime, however, each had its quarter of a century and more of separate growth, in which New Haven stood sponsor to seven future townships, and Connecticut to twelve;—the population and the wealth of the two sections being about in the same ratio.

But it is time to return from this digression to individual cases of town-names in these first groups.

The name of New Haven itself may be thought to present as much difficulty as any other of the entire list, for the theory of an English origin is hardly in this case satisfactory. So far as we can tell, none of the prominent inhabitants

of 1640 (when the name was given) had come from the little fishing village of the same name, and the only one in England, just rising into notice as a convenient harbor on the coast of Sussex, though now familiar enough to modern travelers as the terminus of a line of Channel steamers. Sussex contributed but few to the New England emigration, and we are not sure that even a single one of the first comers to this town was of the Sussex quota. The fact remains, that the plantation after being called for two and a half years from the arrival of the main body of settlers by its Indian name Quinnipiac ("long-water-country"), received in September, 1640, the name New Haven by an order of the General Court. The fact is also preserved—in a letter of John Davenport's, written in 1639, on the first coming of a ship direct from England—that the ship's captain was so well pleased with the harbor, that he called it the Fair Haven, but there is no clear connection between this incident and the essentially different name occurring over a year later. For this name, I know of no better reason to give, than the obvious reason, namely, the inherent fitness of the name as a descriptive one, a *New Haven*, like the reason which induced the settlers on Rhode Island a year earlier to adopt the name of Newport.

Apparently the two adjoining settlements had, before the name New Haven came into use, begun to be called Guilford and Milford;—the former, it is supposed, from Guildford, in Surrey, in the neighborhood of the former parish of Henry Whitfield, the first Guilford minister, and the latter more perhaps because the first *mill* of the region was already built there, at a convenient *ford*, than in reminiscence of any of the numerous Milfords in the old country; if, however, one of those familiar Milfords was thought of, it was most likely Milford Haven, the prominent seaport of south-western Wales, abreast of the entrance to Bristol Channel, and so the last harbor which emigrants direct from Herefordshire, as our Milford people mainly were, would have taken leave of, as they sailed out into the West.

Of the other plantations of this colony, Greenwich no doubt borrowed its name from that of the royal residence on the Thames, and Stamford was a namesake of the ancient town on the borders of Lincolnshire and Northamptonshire, while the musical Indian form Totoket (the last syllables of which are the same with those in the name of the Connecticut), after holding its own for ten years or more, was finally replaced by Branford, the popular corruption of Brentford, a London suburb on the Thames opposite Kew. Southold, the one plantation on Long Island which came under our jurisdiction, was a name common enough in England, and perhaps chosen here partly for geographical reasons. This exhausts the roll of the New Haven Colony, but we find the same rule of English names in the Connecticut territory.

There the list is headed by Hartford, commemorating the charming old town of Hertford, twenty miles due north from London, the birthplace of Samuel Stone, one of the two ministers of the new settlement. At the same time were named Windsor and Wethersfield,—the one evidently from the famous site of the customary residence of the sovereigns of England, and the other as evidently from the little town of the same name in the county of Essex, from the neighborhood of which came John Talcott, one of the most prominent among the proprietors of the new plantation.

To these were next added Stratford, a name like Greenwich and Branford, in reminiscence of a familiar suburb of London, Stratford-at-Bow, and Saybrook, in which is comprehended a fuller chapter of Connecticut history than in any other single name we shall meet. It takes us back to 1632, before the emigration to Hartford and Windsor, and recalls the formation in that year of a company in England for developing the rich valley of the Connecticut. Of this company the foremost members were two of the most prominent among the Puritan nobility,—Viscount Say and Sele, and Baron Brooke,—with whom were joined Lord Rich, the heir of the powerful Earl of Warwick, and such commoners as Pym, and Hampden, and Humfrey, a son-in-law of the Earl of Lincoln. These lords and gentlemen intended presently to transport a supply of Puritan colonists to the unsettled territory, but on finding volunteer colonization, of such stuff and with such motives as met their approval, begun in Hartford and the neighborhood, they willingly waived their contingent rights, for a large pecuniary consideration, and so it happens that the name of Say-Brook, given in honor of the two chief promoters of the company, Lords Say and Brooke, to the fort erected by their order at the mouth of the river, is now the company's only memorial.

An era of manifestly descriptive names was introduced in 1645, when a new

town, made out of the farms in the back country belonging to Hartford people, was called Farmington; so Fair-field was named the next year, and Middle-Town in 1653, as the earliest connecting link between Saybrook and the up-river settlements. Norwalk, in 1650, has usually been associated with these, by being said to commemorate a purchase from the natives of territory measured by one day's *North-walk* from the Sound, but the orthography used in the early appearances of the name does not favor this explanation, and common sense rejects it; it is almost certainly Indian, modified by English lips.

In 1653 the oldest plantation east of the Connecticut river, in which Governor Winthrop was the chief inhabitant, known hitherto by its Indian name of Pequot, received the name of New London,—the Governor improving the occasion to spread upon the records the reason for the change under the "commendable practice of all the Colonies of these parts, that as this Country hath its denomination from our dear native Country of England, and thence is called New England, so the planters, in their first settling of most new plantations, have given names to those plantations of some cities and towns in England, thereby intending to keep up and leave to posterity the memorial of several places of note there, as Boston, Hartford, Windsor," &c.; and so New London supplanted Pequot, the one name which would have fitly handed down the remembrance of the Pequot tribe and the Pequot war, the greatest tragedy enacted on Connecticut soil under European domination.

By the same rule, a few months later, when another plantation was laid out to the northward of New London, it took the name of "Norridge," that particular name being perhaps suggested by the geographical position of the new settlement, it being much the same in relation to the other as the original Norwich to the original London; it is not ascertained that any of the early inhabitants were from Norwich in Old England.

One more locality in the colony had received a permanent name before the close of this period, though not erected into a town for more than a century later; I refer to Meriden, which was settled and named as early as 1664 by Andrew Belcher, of Boston, whose family came originally from Meriden or Miriden, a little village near Coventry, in Warwickshire, which was so named in accurate description of its location, that is, in a *miry dene*, dene being old English for valley.

This ends our survey of the ante-union period, except for notice of the fact that Rye, on the debatable border between the Colony of Connecticut and the Province of New York, was named by the former authority from the English port of that name in Sussex. Of course some other places, also, not yet fully settled, were already locally known by various names which did not prove permanent; such for instance was Mystic, in the territory east of New London, which Massachusetts had pretended to annex, calling it Southertown, which later grew into the modern Stonington.

We come next to the consolidation of the two separate colonies into one, and though it be two hundred and twenty years ago, New Haven has not even yet forgotten the dismay with which she learned in 1662 that the restored King had granted a charter to the Hartford people, putting under their authority all the territory which they could get hold of, from the Rhode Island boundary westward to the Pacific. In the beginning the New Haven government had scrupulously bought out the Indian title to their lands, but had failed of securing a confirmation of this title by a grant from the authority of England, which claimed the sovereign right to the disposal of all the Atlantic coast by virtue of discovery. The unequal struggle of the two colonies could have but one termination. Connecticut had acquired a legal title to the New Haven lands, superior, that is to say, in the eye of English law, to that of the planters themselves. If these planters should decline to submit to her, she might not indeed coerce them, but they were without friends at court, and it was broadly threatened that nothing could in that case avert a still greater evil,—annexation to New York, whose proprietor would not hesitate to establish his authority by force of arms;—and so, after three years of impotent delay, Connecticut found herself acknowledged mistress of all the territory since known as hers.

In explanation of the reluctance with which the older public men of New Haven accepted the issue, it should be said that it meant to them not merely the disappearance of a separate experiment of government, of which they had had control, and the entering of other men into their labors, but much more, the humiliation of a colony which had been founded in church fellowship, and which had aimed at a specially high religious standard in its laws and discipline,

and had exhibited the purest ideal of union of church and state, henceforth to be a subordinate portion of another colony, certainly never so strict in profession,—for instance not exacting *any* religious qualifications of its voters,—and just now, in particular, thought too complaisant in its attitude towards the English throne. But the apprehension was worse than the reality. In fact, the second era of our history stretches through a vista of comfortable prosperity from this union to the severance from England in 1776. With a charter from the King which secured to her people the entire control of the government, Connecticut was complete within herself, and without motive for interest or intrigue beyond her own domain. The effect was, that she prudently kept in the background the subject of relations with the mother-country, and was practically independent of England, long before the other colonies had reached the point of desiring separation.

The same principles, however, in the choice of names for newly gathered communities, continued to hold. But naturally, the further we are from the source of the stream, the harder it will be to trace its descent; it is still possible, nevertheless, to show that the majority of these names repeated to a new generation those which were familiar to their ancestors in the old country. I may not delay for more than a few of the specially striking examples. But I may point out, for instance, that it adds to the interest with which we pass the name of *Killingworth*, to remember that Edward Griswold, pioneer of Englishmen on that ground, was born in Kenilworth, in Warwickshire, and that the form of the name which we use (though a complete disguise of the original meaning, a manor by the *canal* or ditch) is still the familiar corruption among the peasants of the English neighborhood. The original petition for a town, in 1667, preserved in the State Library, in the hand-writing of the minister of the parish, John Woodbridge, spells the name "Kenelmeworth." It is a pity, by the way, that by the modern regulations in this State for the division of towns, the name Killingworth, after having served for one hundred and seventy years to designate the original settlement on the shore of the Sound, had to be transferred,—when that part of the town petitioned for a division,—to a remote back country parish, while the continuity of history was broken by attaching to a locality so long associated with the early English emigration, the bran-new name of Clinton.

Like these Griswolds in Killingworth, and the Talcotts in Wethersfield, many other of our historic houses have recorded indelibly on the map of Connecticut their English origin. Thus the estates which the family of John Haynes, the first Governor of Connecticut, owned at Great Hadham, in Hertfordshire, suggested a name for our Haddam. Thus, again, Groton was named during the governorship of Fitz-John Winthrop, out of respect to the Suffolk county-seat of this distinguished family, and not at all unlikely is it that Colchester, the first town to be named after his accession to the chief magistracy, owed its appellation to the fact that the English Colchester is the nearest town of any considerable size to Groton. Tradition adds that he gave its name to Canterbury also, near the same date, in honor of the great cathedral city of Eastern England.

Similarly, when Governor Winthrop was succeeded by Governor Saltonstall, it was only natural that the manor of Killingly near Pontefract, in Yorkshire, owned by the Saltonstall family, should be honored in the name of a new town, and that Pontefract itself should also be reproduced, in the colloquial form of Pomfret. Possibly also Bolton, named during the same term of office, may have been a reminiscence of Bolton Abbey, one of the famous sights of the same English neighborhood.

So, again, tradition reports that Durham in England was the home of the Wadsworth family, and that thus their prominent share in the settlement of our Durham suggested its name.

So, too, Tolland and Willington commemorate two Somersetshire villages, in one of which was born and in the other lived that Henry Wolcott who came to America in 1630, and whose grandson, Governor Roger Wolcott, was the chief patentee almost a century later of these two new towns in Tolland county. It may be mentioned that the orthography in the case of the younger of these towns was at first usually Wellington, as was that of its English prototype, which has the honor of having given a title to the conqueror of Waterloo.

Once more, the Ripley family was among a company of emigrants from Hingham, in Norfolk, who originally settled the town of Hingham, in Massachusetts Bay, and when descendants bearing the same family name pushed out

into the Connecticut wilderness and founded a new town, naturally they chose for it the name of Windham, dear to their fathers' ears as the customary pronunciation of Wymondham, the largest place within the immediate vicinity of Old Hingham, on the eastern coast of England.

The most recent that I can suggest, of these instances of a family tradition being strong enough to dictate a choice of name, is the case of Salisbury, which as late as 1738 took a name meant, I think, to remind us that the chief original proprietor, the Rev. Moses Noyes, of Lyme, was the son of a native of a little village in Wiltshire, in the near neighborhood of the city of Salisbury.

These may suffice as examples, but we run little risk in saying that it is only our ignorance of family history among the first comers that stands in the way of our finding similar reasons for the reappearance here of such obscure English village names as Simondsbury, colloquially Simsbury, in Dorsetshire, Danbury in Essex, Berkhamstead in Hertfordshire, the birthplace of the poet Cowper, and Torrington and Hartland in Devonshire,—though possibly this last may be descriptive of land colonized from Hartford.

Of less value as indicating directions in which the future genealogist may work, yet not perhaps altogether without promise, are the names of larger English towns or cities which we have copied, such as Lyme and Wallingford, Preston and Derby, Glastonbury, Stafford and Wilton, Litchfield and Coventry, Chester and Winchester.

In some of the later instances in which a well-known English name is conferred on a remote country parish,—as for instance when the inaccessible hill district in New Haven County was called Oxford, in 1741,—it is idle to conclude, either that there was a family tradition connecting the two localities, or that there was a hope of a career which should recall the lustre of the English exemplar. The selection merely testifies to a natural recurrence on the part of descendants, proud of the heritage of English glory, to the names which filled so large a share of English history.

Occasionally a sentimental reason has been assigned for the choice. Thus Newington parish (afterwards made a town) is said to have been named in 1718, out of respect to the residence in Stoke-Newington, a London suburb, of the excellent Dr. Watts, whose hymns, first published eleven years before, had already begun to be known and admired in America; but this explanation is not free from difficulties.

And thus Chatham is said, in 1767, to have been named in fond anticipation that its future shipyards might rival in importance the Royal Dockyard of Chatham, in Kent; at the same time it is fair to suppose that the authorities could read this case between the lines, and allow a special fitness in the name, at the time when William Pitt, Earl of Chatham, was the popular hero of America, because of his stand against the alleged right of Parliament to tax the colonies. That this sentiment might have inspired the name is suggested also by the petition received in the next year for a town in Windham County, to be called Wilkes-Barre, by a combination of the names of two other outspoken English friends of American liberty. The petition, as it happened, was refused, though probably not on account of the name proposed; but emigrants from the same region of Windham County, within a few years from this date, who engaged in the wild crusade for the possession of the Wyoming Valley, in northeastern Pennsylvania, planted there a living memorial of the incident, by naming in 1775 the still flourishing town of Wilkes-Barre.

Sometimes, as in connection with the apportionment into new townships of the further part of Litchfield County in 1738,—the last section of the State to be laid out and settled,—the names of larger divisions of the old country, as Norfolk, Kent and Cornwall, were made use of; so, earlier, we have the infelicitous application of Cheshire (that is Chester-shire, the County of Chester) to a country village; and even of Scotland to one of the least populous towns in the State, so named about 1700 by its earliest inhabitant, a Scotchman by birth; so, too, in 1754, in one of the latest efforts of vanishing loyalty, the parish of *New Britain* was ambitiously set off from Farmington. This leads to the remark that expressions of loyalty to the British Crown and of compliment to the British Court, in the shape of names of places, were in Connecticut conspicuous by their absence. No one need ask for clearer testimony to the main facts of the Colony's relations to England than is furnished by the silent witness of her town-roll; and the lesson may be pointed by contrast with Massachusetts, with which comparison is natural, because of the apparent similarity in forms of government. Yet how great was the actual difference, and how really was that

controlled under its second charter by the mother country, let this fact show,—that of the names of towns given in Massachusetts in just the half-century before the Revolution, at least forty per cent. are distinctly derived from the names or titles or residences of members of the royal family or courtiers and placemen. So that this portion of the roll of Massachusetts townships reads somewhat like the leaf of the peerage, with its Hanover, Lunenburg, Shrewsbury, Bedford, Halifax, Pelham, Hardwick, Granville, Chesterfield, Shelburne, and so on; while by way of counterpart, Connecticut has absolutely nothing to show, unless it be the single instance of Somers, a town originally named by Massachusetts, and later transferred to this Colony in the straightening of the boundary line. Perhaps I ought also to state that in 1761 a new parish formed out of Norwich, by the General Court, was called Hanover, probably a tribute of respect to the reigning house; Hanover Parish, however, never gave name to a town.

The mention of Somers reminds me that there was little worship of heroes, whether native or foreign, in the New Englander of that day if left to himself, least of all in Connecticut, which had been sharply distinguished from the mother colony of Massachusetts Bay in its earliest years by its democratic equality and the comparative absence of a group of leaders with high family connections at home.

Naturally then, we find here no conspicuous attempts, as in Baltimore and New York and Albany to preserve the fame of titled owners; nor any Jamestown, nor Charleston, nor Annapolis, in honor of reigning princes; just as the colony itself did not draw its name from the person or the position of its proprietors, as did Pennsylvania, New York, New Jersey, New Hampshire; nor like Virginia and Carolina, Maryland and Georgia, from royal godfathers and godmothers.

It was natural enough, however, that in a simpler way the zeal of individuals in opening up unbroken tracts of land should be emphasized, as when the new town of Mansfield was named in 1702 in honor of Major Moses Mansfield, one of its largest proprietors. So Reading Parish in 1729 got its name from Col. John Read, the principal settler, though local tradition now asserts that by the time a town charter was applied for, thirty-eight years later, the unpopularity of Col. Read was such that the people voted distinctly that the name to be asked for should be, not Reading but Redding. Thompson in 1730 was named from an early English landholder, Sir Robert Thompson, a devoted friend of the colonies, whose family owned a good part of the township until after 1800. Ellington Parish, though the name is common in Old England, is said to have been so called in 1735, in allusion to the Ellsworth family, as among the principal owners of the district.

The question may be asked here whether the English towns which were the originals of our town names, group themselves in such a way upon the map as to throw any light on the general question of the distribution of emigrations from England to Connecticut. In other words, do these inquiries help us to know from what parts of England Connecticut was peopled? It may be said in reply that the conclusions to be drawn from these data all tend to corroborate the existing information as to Connecticut stock. What this stock usually was, the experience of the nucleus of the New Haven Colony well illustrates; the first settlers in the town of New Haven represented at least three distinct neighborhoods,—one part from London, one from Kent, and one from Yorkshire,—the last colonizing in the quarter which our modern "York Street" marks. Guilford was mainly settled from Surrey and Kent, and Milford from Herefordshire in the west. Here we have then a mingling of streams, from the metropolis, the south-eastern counties, the distant north-east, and the western midland; and this partial view is typical of the whole. In populating Connecticut, not only London and the eastern counties, but in less degree the southwest, the midland, the northeast, all bore their part, and all contributed their fair share to our treasury of town names.

I pass on to other classes of names in the same pre-Revolutionary period. Those suggested by natural peculiarities of soil or landscape need detain us but a moment. Occasionally, as in Roxbury or Brooklyn, the spelling may slightly disguise the original form, but in general such descriptive terms as Stonington and Ashford, Woodbury and Waterbury, Plainfield, Ridgefield, and Rocky Hill, all of which are names originating in New England, are self-explanatory. Brooklyn was of course at first Brook-line and has nothing whatever in com-

mon with the pretty Dutch village of Breuckelen, near Utrecht, which gave its name, meaning "marsh-land," to the City of Churches, opposite New York.

Among our descriptive names is Suffield, which Connecticut acquired from Massachusetts in 1749, with Woodstock, Enfield and Somers, by the straightening of boundary lines, and which was originally named in 1674 Southfield, with geographical reference to Springfield, as Westfield was, it being, as the record of the Massachusetts General Court runs, "the southernmost town that either at present is or is like to be in that country." Enfield, its neighbor on the east, founded nine years later, seems, however, to have had its name from the English Enfield, a northern suburb of London, and not from its being the "End" of this group of "Field" towns. In general the scrutiny of these descriptive appellations should make us well content that this was not the favorite principle under which the colony was developed; it is not decrying the fathers of Connecticut to admit that they lacked the graceful, active imagination which has brought such a system to perfection among other peoples of a warmer blood.

Again, the derivatives from names already existing in the Colony present no difficulty. It should be noted, however, that this class of names affords disappointingly little insight into the movements of population; only three towns, two in Litchfield County and one in Fairfield County, bear names which certainly indicate such sources of colonization, New Milford, settled from Milford in 1703, New Fairfield (1728), and New Hartford (1733); besides these, the town of Salem, in New London County, was so called out of respect to Col. Samuel Brown, of Salem, Mass., a great landholder in the parish when it was named in 1728; and the town of Andover, in Tolland County, is said to have received its name in 1747, in compliment to the emigration of some of its early inhabitants from Andover in Massachusetts. There are also a number of derivatives which merely indicate the geographical partition of a formerly undivided territory; the earliest of these is East Haven, set off in 1707, but long before known as a village by the same name. The composite name of Harwinton was given in 1732 to a new township formed from portions of Hartford, Windsor and Farmington, each name contributing a syllable to the new designation. Many *parish* names have at different times been similarly constructed, though none of these parishes have attained the rank of separate towns; thus Hadlyme, carved out of Haddam and Lyme, Winsted, from Winchester and Barkhamsted, and Stratfield, the parish between Stratford and Fairfield, which later took the natural name of Bridgeport.

Another distinct class is that of Biblical names, introduced by Lebanon, which was in use as early as 1695, before town privileges were applied for. It may be doubted whether there was any attempt in these at special etymological or historical adaptation, though Goshen may be good pasture land, and Sharon abound in rich verdure. Between 1697 and 1762, and chiefly towards the latter date, Connecticut named in this manner eight of her towns, besides several parts of towns or parishes. The fact accords with a certain devoutness of temperament and familiar recourse to Scripture, not out of place in a generation which was stirred to its depths by the revival preaching of Edwards and Whitefield. In most of these cases it is clear that the names did not originate with the residents of the districts, but with the General Assembly or other officials. It is a curious fact that Massachusetts, which we are wont to think of as the ideal Puritan Colony, shows in her entire history but three Biblical names in her list of towns: Salem in 1630, Rehoboth (in Plymouth Colony) in 1645, and Sharon in 1765.

Under the classes now enumerated are included all the names given down to the Revolution, save two exceptional cases, Voluntown, a unique name manufactured in 1708 to denote the land granted by the Colony to the volunteer soldiers of New London County, who had taken such effective part in Philip's war and in the consequent conquest of the Narragansett Indians; and Union, so named in 1732. For the latter name I have no explanation to offer, unless it is to be interpreted by comparison with the names given within a dozen years earlier and later to the various parishes of Unity, New Concord, and Amity, which never became town names. I conjecture that in all these cases there lurks a reference to a combination of disconnected families of emigrants for a common purpose of settlement.

With the outbreak of the Revolution, we enter on a new period in the treatment of town nomenclature, and if we lose the controlling English influence, it is to substitute in a slightly less emphatic degree an American standard.

One-third the names given in this period are descriptive of situation or derivatives from existing names, and an equal portion were given in honor of Americans either nationally or locally renowned. Names taken from English localities are not wholly wanting. Bristol, Hampton, and Essex may perhaps be such; Manchester and Portland certainly are so, with a clear reference to the trade in Manchester cottons and silks, and in Portland stone, as reproduced in the new world; a similar principle prompted the name of the borough of Birmingham. Berlin, Lisbon, Canton and Darien among towns, and Baltic and Hamburg among parishes, are witnesses to the widening of the horizon by foreign travel and commercial ventures. The names of Hamden, assigned by the Assembly in place of Mount Carmel, in 1786, and Cromwell, of so late a date as 1851, were evidently borrowed from the annals of the English revolution of 1640; so Orange, in 1822, was distinctly given in honor of the hero of the revolution of 1689. The same spirit which dictated these selections, exulting in the triumphs of the Revolution, gave us the towns of Washington in 1779, of Franklin and Warren in 1786; of Columbia in 1804, of Vernon (from Mount Vernon) in 1808, and of Putnam in 1855. A kindred spirit, that which does honor to the leading official characters of the nation, gave us Monroe in 1823, during President Monroe's administration; while the next town to be incorporated, three years later, bore the name of Madison. Strangely enough, in the light of the political history of the State these were not accompanied by any like tribute to the greater leader of the party dear to Connecticut, President Jefferson. With respect for the great men of the nation, there is sure to be fostered also respect for the eminent men of the individual State; and our roll worthily commemorates such statesmen as Sherman, and such Governors as Trumbull and Griswold and Huntington and Wolcott and Seymour. A number of towns, as might be expected, preserve the names of local celebrities. Such are Woodbridge and Brookfield, named from their first ministers, Benjamin Woodbridge and Thomas Brooks; Sterling, from a temporary resident, Dr. John Sterling, who made in 1794 an offer, never fulfilled, to give a public library, if he might be thus commemorated; Chaplin, from Deacon Benjamin Chaplin, who endowed the church in that parish; Ledyard, from a former proprietor of the district, and from the noted traveler, John Ledyard, a native of the soil; Morris, from the well-known Litchfield family of that name; and Sprague and Thomaston, from the capitalists who developed the manufacturing resources of those communities.

We are limiting our inquiry to incorporated towns; as every one sees, however, the parishes or boroughs in Connecticut have often eclipsed in importance and repute the towns proper in which they are found. And of course a large number of these local business centres of modern growth hand down the names of the men or the families who have promoted them; thus we have Ansonia, from Anson G. Phelps of New York, Jewett City, Collinsville, Plantsville, Danielsonville, and so on.

The habit of naming from points of natural scenery and from geographical relation to other places has continued during the post-Revolutionary period, giving a large number of appellations, as a rule not at all interesting. There are a few graphic exceptions, such as Prospect and Bloomfield. Fortunately the list is disfigured by only one hybrid compound, that is, only one in which the several parts are evidently taken from different languages; the exception, and that as recent as 1869, is Plainville, heretofore locally known as the Great Plain. The single other instance in which this termination appears is in Montville, where both parts are French, and where the meaning, "hill-residence," not only describes appropriately the elevated situation, but has a covert reference to the family name of the first pastor of the flock, the Rev. James *Hillhouse*, a name made memorable to New Haven also, through a line of his descendants.

Under date of 1844 appears the only Indian name besides Norwalk borne by a Connecticut town, that of Naugatuck. We do well to regret that so many of the euphonious syllables which preceded all names of our choosing on this soil have been thought unworthy of formal adoption; the only recompense must lie in their retention to mark lesser local divisions, some of which are as familiarly known as any towns; so we have Willimantic, Mystic, Niantic, Montowese, Cos-Cob, and a long catalogue of others. In this matter of esteem for Indian terminology, Connecticut showed herself less conservative than any other of the colonies; to recur to Massachusetts for comparison, there Scituate in the Plymouth Colony was the sole example until 1762; then before the Revolution we find Natick, Marshpee, and Cohasset, reinforced in later times by half a dozen more.

In the entire Connecticut list there is no name derived from classical literature; the pervading influence of the College did not encourage any such affectations as have disfigured, for instance, central New York, with its Ovid and Tully, its Marathon and Pharsalia, its Delphi and Tyre, its Romulus and Pompey, and a host of others.

There are only two names in our list which allow any suspicion of a sentimental origin; these are Union, already mentioned, and Avon, named in 1830 by some admirer of the bard of Avon. It is a proof perhaps of the more sober and prosaic nature of Connecticut pioneers, that they did not emulate Roger Williams in that sublime touch of religious sentiment in which he gave his city of refuge the name of Providence; a generation, however, which coined or adopted the beautiful name of Fairfield cannot be wholly wanting in the poetic sense.

I may add a word as to the relative responsibilty of the town itself and the Colony authorities for the names actually given. In earlier times the evidence goes to show that the preferences of the settlers in a new place had the controlling influence, while for the later Colonial period the central power had much more to do with determining the selection. Yet there were exceptions enough to point a striking contrast to the experience of Massachusetts. There, after the original charter was set aside, in 1684, the *colony* became a *province* in the full sense of the original distinction of those words; the volunteer settlement became a conquered outpost of England, and a race of royal governors left their broad mark on the vanquished territory in a monotonous series of derivatives from courtiers and politicians, to which as I have said before, Connecticut, with her governors always chosen by popular election, has no parallel. In the ordinary run of cases, probably, the choice of a name was left to the governor. When the inhabitants, as rarely happened after the earliest years, expressed a preference, it was usually respected. Occasionally, however, just often enough to keep alive the knowledge of their right to do so, the authorities exercised even in such cases the power of decision. Thus, in 1687, the primitive settlers of what we know as Danbury petitioned for town-privileges, requesting the name of Swampfield, and perhaps it may be thought to imply an Essex origin for the family of the then Governor, Robert Treat, that in rejecting as he did the prosaic compound which the people asked for, he substituted a village name familiar to none but an Essex man, though full of suggestion to him of Danebury, the ancient encampment of the Danish invader in that shire of eastern England. Again, a generation later, in 1720, when a petition came in from the scattered farmers of what had been locally known as Hartford Mountains, or Hanover, that they should be set off as the town of Hanover, the Assembly, or more properly Governor Saltonstall himself, discarded the proposed name, which might well have seemed like an obtrusive attempt to profess allegiance to the house lately seated on the British throne, and assigned instead the colorless name of Bolton. The incident is quite in keeping with the favorite attitude of Connecticut towards the mother country, putting in the background as much as possible the relation between them. Another instance of these interferences with the avowed will of the petitioning inhabitants, is in the case of a part of Norwich, which in 1786 sent a request to be made into a town by the name of Bath, but Bozrah was preferred by the Assembly. The floating tradition, which I give for what it is worth, is that the change was in consequence of some one's observing the particolored homespun suit worn by the rustic messenger who offered the petition, and flippantly reciting the solemn apostrophe of the Hebrew prophet: "Who is this that cometh from Edom, with dyed garments from Bozrah?" Whether the explanation is correct or not, certain it is that the name originally presented was stricken out and another conferred, at a time when Biblical names had ceased to be the fashion for such purposes in Connecticut, and one which has so little to commend it that it is one of the few of our town names which remains unique, not duplicated in the lists of any of the newer States.

It would require a closer study of the currents of population for the last fourscore years than I have been able to give, to show exhaustively how the dispersion of the sons of Connecticut has dotted the wide continent with the old town names, and with others derived from honored families of the State. Not only on the Western Reserve in Ohio do Norwalk and Saybrook, New London and New Haven, Lyme and Danbury, Cleveland and Painesville, Canfield and Tallmadge, and a multitude of other names, hand down the record of the first peopling of that region as "New Connecticut." Later emigrations to further

distances have kept repeating the same process, and just as the forefathers made old Connecticut a guide-book to those English hamlets which they held in brightest remembrance, so the descendants inheriting their enterprise as pioneers, have made of new homes all over the west and south-west speaking memorials of the State of their birth; and herein, though it be in a sense which no prophet or statesman foresaw, is fulfilled the bold promise of the charter which his gracious majesty King Charles II. magnificently, if ignorantly, gave in 1662, providing that his loyal Colony of Connecticut should run for the future from the Narragansett river on the east, westward—westward still, across the continent to the Pacific Sea!

APPENDIX.

A List is subjoined of the 167 incorporated towns in Connecticut, chronologically arranged according to the dates of the first use of their names, so far as the present writer is informed. The supposed origin of the names is indicated in parentheses, or by figures, with the following meaning:—1, from localities in England and other foreign countries; 2, from personal names; 3, from other American localities, especially in Connecticut; 4, from peculiarities of natural situation; 5, from the Bible.

1636, Saybrook, 2.
1637, Hartford, 1.
1637, Wethersfield, 1.
1637, Windsor, 1.
1639, Milford; 4 or 1.
1639, Guilford, 1.
1640, New Haven, 4.
1640, Greenwich, 1.
1642, Stamford, 1.
1643, Stratford, 1.
1645, Farmington, 4.
1646, Fairfield, 4.
1650, Norwalk (Indian).
1653, Branford, 1.
1653, Middletown, 4.
1658, New London, 1.
1659, Norwich, 1.
1664, Meriden, 1.
1666, Stonington, 4.
1667, Killingworth, 1.
1667, Lyme, 1.
1668, Haddam, 1.
1670, Wallingford, 1.
1670, Simsbury, 1.
1674, Suffield, 4.
1674, Woodbury, 4.
1675, Derby, 1.
1683, Enfield, 1.
1686, Waterbury, 4.
1687, Preston, 1.
1687, Danbury, 1.
1690, Woodstock, 1.
1691, Windham, 1.
1692, Glastonbury, 1.
1695, Lebanon, 5.
1699, Colchester, 1.
1700, Plainfield, 4.
1702, Mansfield, 2.
1703, Canterbury, 1.
1703, New Milford, 3.
1704, Durham, 1.
1705, Groton, 1.
1706, Scotland, 1.
1707, East Haven, 3.
1707, Hebron, 5.
1708, Voluntown (see above, p. 60).
1708, Newtown, 1. (?)
1708, Killingly, 1.
1709, Ridgefield, 4.
1710, Ashford, 4.
1711, Coventry, 1.
1713, Pomfret, 1.
1715, Tolland, 1.
1718, East Haddam, 3.
1718, Stafford, 1.
1718, Newington, 1.
1718, Rocky Hill, 4.
1719, Litchfield, 1.
1720, Bolton, 1.
1724, North Stonington, 3.
1724, Cheshire, 1.
1754, New Britain, 1.
1756, East Hartford, 3.
1759, Bethel, 5.
1762, Bethany, 5.
1767, Chatham, 1 or 2.
1768, East Windsor, 3.
1768, North Branford, 3.
1777, Eastford, 3.
1779, Washington, 2.
1780, Watertown, 4.
1784, Woodbridge, 2.

1725, Willington, 1.
1726, Wilton, 1.
1726, Southington, 4.
1726, [New] Salem, 3.
1728, New Fairfield, 3.
1729, Redding, 2.
1730, Thompson, 2.
1731, Southbury, 3.
1731, New Canaan, 5.
1732, Torrington, 1.
1732, Barkhamsted, 1.
1732, Colebrook, 1.
1732, Harwinton, 3.
1732, Union (see above, p. 60).
1733, Hartland, 1 or 3.
1733, Winchester, 1.
1733, New Hartford, 3.
1734, Somers, 2.
1735, Ellington, 2. (?)
1738, Norfolk, 1.
1738, Goshen, 5.
1738, Canaan, 5.
1738, Cornwall, 1.
1738, Kent, 1.
1738, Salisbury, 1.
1739, North Haven, 3.
1739, Bethlehem, 5.
1739, Sharon, 5.
1740, Chester, 1.
1741, Oxford, 1.
1743, Roxbury, 4.
1744, Middlefield, 4.
1747, Andover, 3.
1747, Marlborough, 1 or 2.
1752, Brooklyn, 4.
1785, Berlin, 1.
1785, Bristol, 1.
1786, Bozrah, 5.
1786, Franklin, 2.
1786, Hamden, 2.
1786, Lisbon, 1.
1786, Warren, 2.
1786, Granby, 3 (?).
1786, Hampton, 1 or 3.
1786, Montville, 4 and 2.
1787, Weston, 4.
1788, Brookfield, 2.
1789, Huntington, 2.
1790, Middlebury, 4.
1794, Sterling, 2.
1795, Plymouth, 3.
1796, Wolcott, 2.
1797, Trumbull, 2.
1800, Bridgeport, 4.
1801, Waterford, 4.
1802, Sherman, 2.
1803, Bridgewater, 4.
1804, Columbia, 2.
1806, Burlington, 3. (?)
1806, Canton, 1.
1806, West Hartford, 3.
1808, Vernon, 3.
1809, Chaplin, 2.
1810, Westbrook, 3.
1813, North Canaan, 3.
1815, Griswold, 2.
1816, East Lyme, 3.
1820, Darien, 3.
1820, Essex, 4.
1822, East Granby, 3.
1822, Orange, 2.
1823, Manchester, 1.
1823, Monroe, 2.
1826, Madison, 2.
1827, Prospect, 4.
1830, Avon, 1.
1831, Plainville, 4.
1833, Windsor Locks, 3.
1835, Bloomfield, 3 or 4,
1835, Westport, 4.
1836, Ledyard, 2.
1838, Clinton, 2 or 3.
1841, Portland, 1.
1844, Naugatuck (Indian).
1845, Easton, 3.
1845, South Windsor, 3.
1850, Seymour. 2.
1851, Cromwell, 2.
1852, Old Saybrook, 3.
1855, Old Lyme, 3.
1855, Putnam, 2.
1856, Beacon Falls, 4.
1859, Morris, 2.
1861, Sprague, 2.
1866, Thomaston, 2.

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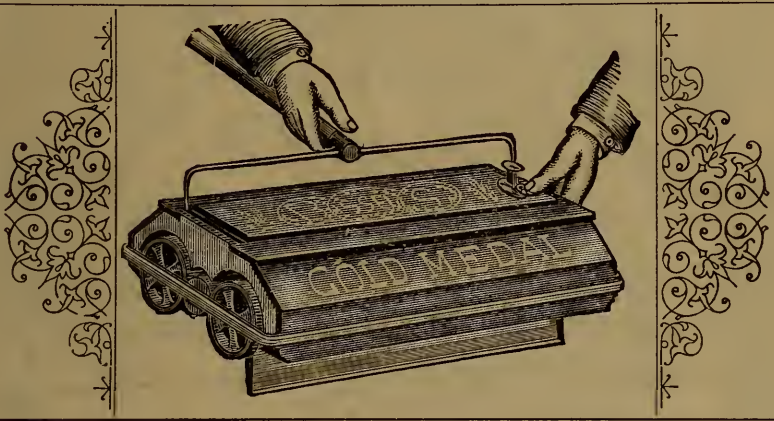
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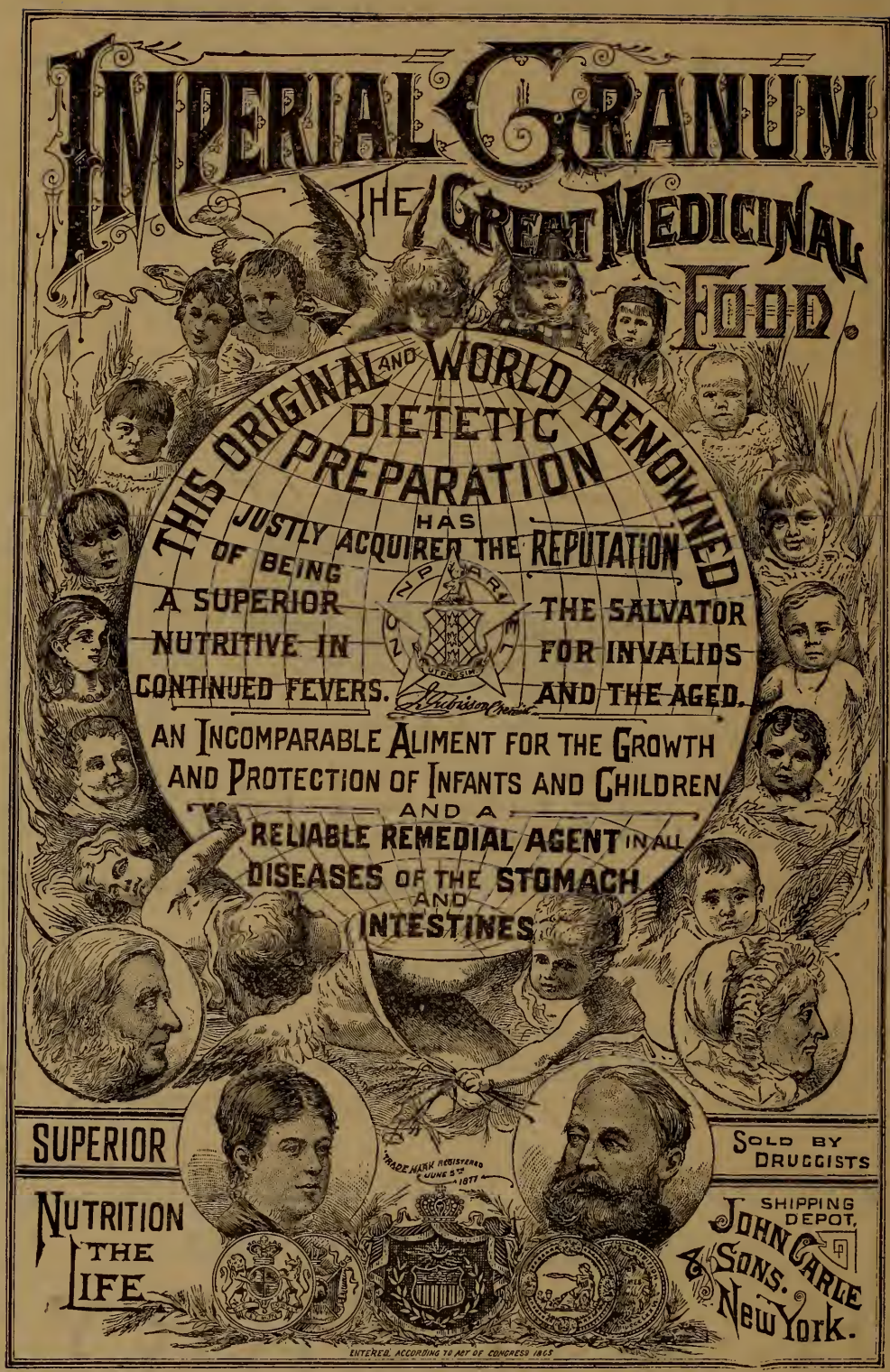
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The government list, from which this is taken, and which contains minute descriptions of marks with complete sailing directions, is sent free to any ship master on application to the office of the Light-House Board, Washington, D. C.

For sailing directions see end of this list.

Block Island Sound and Tributaries.

Entering from Sea to Long Island Sound, to mark the Main Ship Channel between Point Judith and Block Island and Little Gull Island, to the Race, Long Island Sound.

Name of station or locality of aid.	Color of aid.	No., if a buoy.	Description of mark or aid.	Depth at lowest tides, in feet.	Visible, Miles.
Point Judith Light-station.	White	..	Stone Tower 46 feet high. Light, flashing white.	..	14
Block Island Light-station.	Light brown	..	Two Story Granite Dwelling. Light, fixed white.	..	13½
Block Island Breakwater Range (front).	.....	..	Lantern suspended from a stake. Light, fixed red.	..	6
Block Island Breakwater Range (rear).	White	..	Lantern on mast near small white house. Lt fixed red.	..	6
Block Island Light-station (southeasterly).	Red; lantern black.	..	Dwelling, with tower 52 ft high. Lt., fixed white.	..	21
Block Island (north) Reef.	Black.....	1	Whistling Buoy	48	...
Southwest Ledge	Red and bl'k.	..	Nun Buoy	30	...
Montauk Point (Great Eastern Rock) Buoy.	Black	3	1st-cl. nun; spar in winter.	30	...
Montauk Point Light-station.	White	..	Stone Tower. Lt. fixed, with white flashes.	..	19½
Shagwong Reef Buoy	Black	5	1st-class nun; spar in win.	24	...
Shagwong Rock.....	Red and bl'k.	..	Spar, 25 ft	8	...
Middle Ground, or Cerberus Shoal Buoy.....	Red and bl'k.	..	2d-class, spar.	18	...
Cerberus Shoal	Red and bl'k.	..	Whistling Buoy	42	...
Little Gull Island Light-station.	Gray	..	Granite tower 74 ft. high. Light, fixed white.	..	17
Breese Rock Buoy.....	Red and bl'k.	..	1st-class spar	27	...
Gardiner's Island Light-station.	Dark brown.	..	Circular brick tower 26 ft. high. Lt. fixed white.	..	11

Entering from the Eastward, to mark the Channel through the Race to Main Channel through Long Island Sound.

Race Point Buoy	Red	2	1st-class spar	17	...
Race Rock Light-station..	Gray; lantern black.	..	Tower 40 ft. high. Light, red and white flashes.	..	14
Valiant Rock Buoy	Red and bl'k.	..	1st-class spar	17	...
Dittle Gull Island Buoy ..	Black	1	2d-cl. nun; spar in winter.	16	...
Little Gull Island Light-station.	Gray	..	Granite Tower 74 ft. high. Light, fixed white.	..	17
Bartlett's Reef Light-ship.	Black, with white streak	..	Two masts; name. Two reflector-lights, fixed white.	66	10

Entering from Eastward from Bartlett's Reef, to mark the Main Ship Channel in Long Island Sound to Throg's Neck, New York.

Name of station or locality of aid.	Color of aid.	No., if a buoy.	Description of mark or aid.	Depth at lowest tides, in feet.	Visible Miles.
Bartlett's Reef Buoy	Red	4	Spar, 35 feet	18	...
Black Boy Rock Buoy	Red	2	Spar, 35 feet	18	...
Plum Island Light-station.	White; lantern, black.	..	Granite Dwelling, Light flashing white, 46 ft. high.	..	14
Hatchett's Reef Buoy	Red	6	Spar, 35 feet	15	...
Hatchett's Reef Buoy	Black	1	Spar, 35 feet	..	...
Entrance to Channel north Long Sand Shoal.	Red	8	2d-class can; spar in winter.	18	...
Saybrook Breakwater Light-station.	.....	..	Lantern hung from a stake. Light, fixed white.	..	6
Saybrook (Lynde Point) Light-station.	White	..	Stone tower 64 feet high. Light, fixed white.	..	14
Long Sand Shoal (east end) Buoy.	Red and bl'k.	..	Spar, 35 feet	15	...
Orient Shoal	Black	3	Spar, 35 feet	18	...
Cornfield Point Light-ship.	Red	..	Two masts, name. Light fixed red reflector.	45	12
Long Sand Shoal (west end) Buoy.	Red and bl'k.	..	2d-class nun; spar in winter.	16	...
Horton's Point Light-station.	White	..	Square brick tower 35 feet high. Light, fixed white.	..	16
Six Mile Reef	Red and bl'k.	..	3d-class nun buoy and spar buoy when ice runs.	21	...
Hammonassett Pt Buoy	Red	2	Spar, 30 feet	18	...
Charles's Reef Buoy	Red	4	Spar, 30 feet	18	...
Kimberly's Reef Buoy	Red and bl'k.	..	Spar, 35 feet	15	...
Sou'west Indian Reef Buoy	Red	6	Spar	21	...
Faulkner's Island Light-station.	White	..	Tower 46 ft. high. Light, fixed white, with flashes.	..	15
Faulkner's Island Buoy	Black	1	Spar, 35 feet	18	...
Goose Island Buoy	Red	8	2d-class spar	15	...
East Ledge Buoy	Red	10	Spar, 35 feet	18	...
Branford Reef Beacon	Gray	..	A granite tower, with iron shaft and ball.	Dry	...
Roanoke Point Buoy	Black	5	Spar, 35 feet	18	...
Townsend's Ledge Buoy	Red and bl'k.	..	Spar, 45 feet	18	...
Round Rock Buoy	Red	12	Spar, 35 feet	15	...
Big Boil	Red	14	Spar buoy, 25 feet	..	...

Entering from Eastward from Bartlett's Reef, to mark the Main Ship Channel in Long Island Sound from New Haven (Southwest Ledge) Light-house to Throg's Neck, New York.

Southwest Ledge Light-station.	Red	..	One-story house. Light fixed white; 32 ft. high.	...	13
New Haven Light-house tower.	White	..	Stone tower. Light discontinued.	...	...
Herod's Point Shoal Buoy.	Black	7	Spar, 35 feet	18	...
Luddington Rock Buoy	Red and bl'k.	..	1st-cl. nun; spar in winter.	16	...
Pond Point Buoy	Red	14	Spar, 35 feet	18	...
Welch's (or Cedar) Pt Buoy	Red	16	Spar, 35 feet	18	...
Stratford Point Light-station.	White	..	Tower 35 feet high. Light, flashing white.	...	12¾
Stratford Pt. Shoal Buoy.	Red	16	Spar, 40 feet	14	...

Name of station or locality of aid.	Color of aid.	No., if a buoy.	Description of mark or aid.	Depth at lowest tides, in feet.	Visible Miles.
Stratford Shoals Light-station (Middle Ground).	Gray	..	Tower 40 ft. high. Light, flashing white.	...	13½
Mount Misery Shoal Buoy	Black	11	Spar, 30 feet	14	...
Old Field Point Light-station.	Gray; lantern, black.	..	Dwelling. Light, fixed white, 46 ft. from ground.	...	14½
Bridgeport Harbor Light-station.	White; lantern, black.	..	Tower and dwelling white. Lt., fixed red, 34 ft. high.	...	12¾
Black Rock Light-station.	White; lantern, black.	..	Stone tower, 33 feet high. Light, fixed white.	...	12
Black or Huncher's Rock (Penfield Reef) Beacon.	Red	..	An iron-pile structure with a large cage.	...	...
Penfield Reef Light-station.	White	..	A one-story dwelling. Lt., flashing Red, 37 ft. high.	...	12¾
Pine Creek Buoy	Red	18	Spar, 40 feet	21	...
Norwalk Island Shoal (east end) Buoy.	Red	20	2d-class can	16	...
Great Reef	.....	..	Iron shaft, with cage.....	...	...
Norwalk Island Light-station.	Gray; lantern, black.	..	Two-story granite dwell'g. Light, fixed white with red flashes. 46 ft. high.	...	12½
Norwalk Island (west end) or Green's Ledge Buoy.	Red	22	2d-class can; spar in winter.	16	...
Eaton's Point Shoal Buoy.	Black	13	Spar, 40 feet	15	...
Eaton's Neck Light-station	White; lantern, black.	..	Stone tower, 63 feet high. Light, fixed white.	...	18
Lloyd's Harbor Light-station.	White	..	Square tower. Light, fixed red. 34 feet high.	...	11½
Smith's Rock Buoy.....	Red	24	Spar, 35 feet	12	...
The Cows, or Shippan Pt. Buoy.	Red	26	2d-class can.	12	...
Stamford Harbor Light-station.	Red; lantern, black.	..	Round tower, on a red pier. Light, fixed red.	...	13¼ ...
Lloyd's Point Shoal Buoy.	Black	15	Spar, 40 feet	18	...
Centre Island Reef Buoy..	Black	17	Spar, 40 feet	18	...
Great Captain's Island Lt.-station.	White	..	Dwelling. Light, fixed white. 46 feet high.	...	14
Bluefish Reef Buoy	Red	28	Spar, 35 feet	18	...
Matinicock Point Buoy ..	Red	19	Spar, 40 feet	18	...
Scotch Cap Buoy	Red	2	2d-class spar.....	12	...
Delancey's Point Buoy...	Black.....	1	2d-class spar.....	18	...
Execution Rocks Shoal Buoy (north end).	Red and bl'k.	..	Spar, 35 feet	18	...
Exe. Rocks Shoal (E. side)	Red	..	Spar Buoy, 35 feet.....	18	...
Execution Rocks Light-station.	White	..	Stone tower, 47 feet high. Light, fixed white.	...	13
Execution Rocks Shoal Buoy (southwest end).	Red and bl'k.	..	Spar, 35 feet	18	...
Middle Rock Buoy.....	Red and bl'k.		3d-class spar.....	6	...
Sand's Point Reef Buoy..	Black	21	Spar, 40 feet	21	...
Sand's Point Light-station.	White; lantern, black.	..	Stone tower. Lt., flashing white. 46 feet high.	...	13
Gangway Rocks Buoy....	Black	23	Spar, 45 feet	20	...
Success Rock Spindle....	Red	..	An iron shaft.....	7	...
City Island Shoal Buoy ..	Red	30	Spar, 35 feet	15	...
Stepping Stones Light-station.	Red	..	Lantern on dwelling. Lt., fixed red. 36 feet high.	...	12
Throg's Neck Buoy.....	Red	32	Spar, 40 feet, and a cage..	...	...
Throg's Neck Light-station.	White	..	Wooden tower, 61 ft. high. Light, fixed white.	...	12¾

Entering from Point Judith Light-house through Fisher's Island Sound to the Westward of Bartlett's Reef Light-vessel.

Name of station or locality of aid.	Color of aid.	No., if a buoy.	Description of mark or aid.	Depth at lowest tides, in feet.	Visible Miles.
Point Judith Light-station.	White	..	Tower, 46 ft. high. Light, flashing white.	..	14
Block Island North Reef.	Black	1	Whistling Buoy	24	..
Watch Hill Light-station.	Gray	..	Granite tower, 40 ft. high. Light, fixed white.	..	13
Gangway Rock	Red	2	1st-class spar buoy	21	..
Watch Hill Reef Buoy	Black	..	Bell buoy	21	..
Watch Hill Reef Buoy	Black	..	Iron spindle, square cage.	..	..
Sugar Reef	Black	..	Iron spindle, cage form of cone.	..	..
East Spindle	Red	..	An Iron spin., square cage.	4	..
Napatree Pt. Ledge Buoy.	Red	4	2d-class can; spar in wint.	18	..
Wicopesset Rock	Black	..	An iron spin., square cage.	4	..
Middle Ground Buoy	Red	6	2d-class can in summer. spar in winter.	18	..
Stonington Harbor Light-station.	White	..	Dwelling; Lt. fixed white, 32½ feet from ground.	..	11
East of Latimer's Reef	Red and bl'k.	..	Spar buoy, 35 feet	15	..
Seal Rocks (northeast)	Red and bl'k.	..	Spar buoy, 35 feet	..	..
Seal Rocks	Black	3	Spar buoy, 35 feet	15	..
North Latimer's Reef	Red and bl'k.	..	Spar buoy, 35 feet	15	..
Latimer's Reef Light-station.	White	..	Iron tower, lant. blk. 56 ft. high. Light flash. white.	..	13
Young's Rock	Black	5	Spar buoy, 35 feet	15	..
Eel Grass Shoal (southeast)	Red	10	Spar buoy, 35 feet	18	..
Eel Grass Shoal (nor'west).	Red	12	Spar buoy, 35 feet	20	..
Ram Island Reef	Red	..	An iron spin., round cage.	..	..
Ram Island Reef Buoy	Red	14	2d-class can; spar in wint.	18	..
Middle Clump (north)	Black	5½	Spar buoy, 35 feet	18	..
Sweeper's Ground Buoy.	Red	16	Spar, 30 feet	12	..
Groton Long Point Reef Beacon.	Red	..	An iron spin., with a cage in form of inverted cone.	..	..
North Dumpling Rock Light-station.	White	..	Lantern on dwelling. Lt., fixed red, 39½ feet high.	..	11
North Hill Reef	Black	7	Spar buoy, 30 feet	10	..
Potter's or Sea Flower Reef Beacon.		..	Iron spindle, with cage	..	..
Bartlett's Reef Light-ship.	Black, with white streak.	..	Two masts; name. Two fixed white reflector l'ts.	66	10
Bartlett's Reef	Red	4	Spar buoy, 35 feet	18	..

Going from Fisher's Island Sound to Mystic, through the Channel between Dumpling Rock and Sea Flower or Potter's Reef.

Potter's or Sea Flower Reef Beacon.	Red and bl'k.	..	Iron spindle and cage	..	..
North Dumpling Light-station.	White	..	Lantern on dwelling. Lt., fixed red, 39½ feet high.	11	11
Groton Long Point Reef Beacon.	Red	..	An iron spin., with a cage in form of inverted cone.	..	..
Sweeper's Ground	Red	16	Spar buoy, 30 feet	12	..
Channel Buoy	Perpendic'lar stripes.	..	Spar, 20 feet	11	..
Channel Buoy	Perpendic'lar stripes.	..	Spar, 20 feet	11	..

Name of station or locality of aid.	Color of aid.	No., if a buoy.	Description of mark or aid.	Depth at lowest tides, in feet.	Visible Miles.
Whale Rock	Red	..	An iron spindle with a square cage.	3	..
Morgan's Point, or Mystic River Light-station.	White	..	Lantern on dwelling. Lt., fixed white; 44 ft. high.	..	11
Ram Island Flats	Red	2	Spar buoy, 20 feet	10	..
Crook's Spindle	Black	..	Spindle and keg	2	..

Entering New London Harbor from Long Island Sound, by Main Channel, from Bartlett's Reef Light-vessel.

Bartlett's Reef Light-ship.	Black, with white streak.	..	Two masts; name. Two fixed white reflector lights.	66	10
Little Goshen Reef	Black	1	Spar buoy, 25 feet	15	..
Rapid Rock	Red and bl'k.	..	Spar buoy, 25 feet	12	..
Goshen Reef	Black	3	Spar buoy, 25 feet	13	..
Sarah's Ledge	Red and bl'k.	..	Spar buoy, 35 feet	20	..
Ledge off Cormorant Rock	Black	5	Spar buoy, 35 feet	15	..
Southwest Ledge	Red and bl'k.	..	Spar buoy, 25 feet	12	..
Southwest point of Black Ledge Buoy.	Red	2	2d-class can; spar in winter.	18	..
Black Ledge Beacon	Black	..	A spindle and two cones.	..	..
Frank's Ledge	Red and bl'k.	..	Spar buoy, 25 feet	13	..
New London Light-station	White	..	A stone tower, 85 ft. high. Light, fixed white.	..	15
Melton's Ledge	Black	7	Spar buoy	9	..

Entering from the Sound, to mark the Southeast Channel over Saybrook Bar and into the Connecticut River.

Starboard Bar Buoy	Red	8	2d-class can; spar in win.	18	..
Entrance Buoy	Perpendic'lar stripes.	..	Spar, 30 feet	18	..
Saybrook Beacon	White	..	A granite structure, with globe.	..	6
Saybrook Breakwater Light-station.		..	Stake-light. Light, fixed white.	..	6
Saybrook (Lynde Point) Light-station.	White	..	Stone tower, 64 feet high. Light, fixed white.	..	14

Entering from the Sound, to mark the Connecticut River from Saybrook Light-house.

Calves Island Light-station	Black	..	Iron column. Light, fixed white.	..	5
Hayden's Reef Buoy	Black	1	2d-class nun; spar in winter.	8	..
South end of Pequot Reef.	Black	3	Spar buoy, 25 feet	10	..
Brockway's Beach Light-station.	Black	..	Iron column. Light, fixed white.	..	5
Mud Island (South end)	Red	2	Spar buoy, 25 feet	12	..
Devil's Wharf Light-station.	Black	..	Iron column. Light, fixed white.	..	5
Chester Rocks	Red	4	Spar buoy, 20 feet	8	..

Entering from Long Island Sound, to mark the Channel into New Haven Harbor.

Name of mark or locality of aid.	Color of aid.	No., if a buoy.	Description of mark or aid.	Depth at lowest tides, in feet.	Visible Miles.
Luddington Rock.....	Red and bl'k.	..	1st-class nun buoy	12	..
West Haven Flats	Black.....	1	Spar buoy, 30 feet	11	..
Southwest Ledge Light-station.	Red	..	One-story house. Light, fixed white, 32 feet high.	..	13
Quixe's Ledge.....	Black	..	An iron spin., with a cask.	..	..
Adam's Fall Buoy	Red	4	2d-class can; spar in wint.	6	..
New Haven Harbor (old) Light-house.	White	..	Stone tower. Light discontinued.	..	..
Party's Bar	Black.....	3	2d-class nun buoy.....	11	..
Fort Hale, or Black Rock.	Red	6	Spar buoy, 35 feet	17	..
Shag Bank.....	Black.....	5	Spar buoy, 30 feet	14	..
New Haven Long Wharf Light-station.	Drab	..	Lantern on wooden tower 16 ft. high; Light, fixed red	..	9

To mark the Channel to Bridgeport Harbor, Connecticut.

Penfield Reef Light-station.	White; dw'g, gray; pier, dark.	..	Granite dwelling, and tower 37 feet high. Light, flashing red.	...	12¾
Black or Huncher's Rock Beacon.	Red	..	An iron pile with a large cage.	...	...
Stratford Point Shoal	Red	16½	Spar buoy, 40 feet	14	...
Black Rock Light-station.	White; lantern, black.	..	Stone tower, 33 feet high. Light, fixed white.	...	12
Bridgeport Light-station..	White; lantern, black.	..	On iron piles 34 feet high. Light, fixed red.	...	12¾
East Flats.....	Red	2	Spar buoy, 25 feet... ...	10	...
Outer (southwest) Beacon.	Black.....	..	A wooden pyramid with a spar and cask.	...	...
Southwest Buoy.....	Red	4	Spar, 25 feet	11	...
Inner (northeast) Beacon..	Black.....	..	A wooden pyramid	...	...

SAILING DIRECTIONS.

1. In approaching the channel, etc., from seaward, RED BUOYS, with EVEN NUMBERS, will be found on the STARBOARD side of the channel, and must be left on the STARBOARD hand in passing in.

2. In approaching the channel, etc., from seaward, BLACK BUOYS, with ODD NUMBERS, will be found on the PORT side of the channel, and must be left on the PORT hand in passing in.

3. BUOYS painted with RED and BLACK HORIZONTAL STRIPES will be found on OBSTRUCTIONS, with channelways on either side of them, and may be left on either hand in passing in.

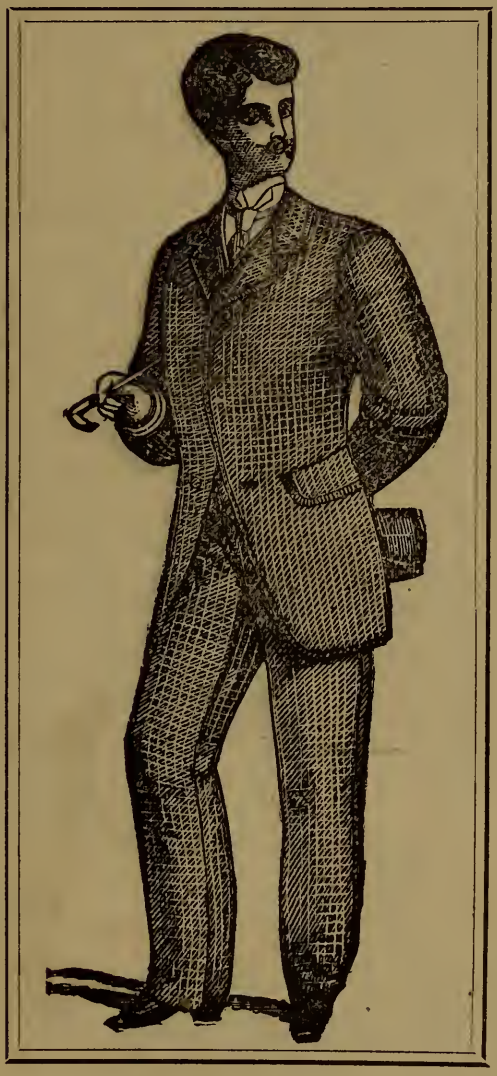
4. BUOYS painted with WHITE and BLACK PERPENDICULAR STRIPES will be found in MID-CHANNEL, and must be passed close-to to avoid danger.

Perches, with balls, cages, etc., will, when placed on buoys, be at turning-points, the color and number indicating on what side they shall be passed.

Different channels in the same bay, sound, river, or harbor, will be marked, as far as practicable, by different descriptions of buoys. Principal channels will be marked by nun buoys; secondary channels, by can buoys; and minor channels by spar buoys. When there is but one channel, nun buoys, properly colored and numbered, are usually placed on the starboard side, and can buoys on the port side of it.

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CONNECTICUT COURTS.

Supreme Court of Errors.

Chief Judge—JOHN D. PARK, Norwich.

Associate Judges:

ELISHA CARPENTER, Hartford. DWIGHT LOOMIS, Rockville.
DWIGHT W. PARDEE, Hartford. MILES T. GRANGER, North Canaan.

Reporter—JOHN HOOKER, Hartford.

FIRST JUDICIAL DISTRICT.—*Hartford, Litchfield, Windham, Middlesex and Tolland Counties.*—1st Tuesday in January; 1st Tuesday in March; 1st Tuesday in May; 1st Tuesday in October.

SECOND JUDICIAL DISTRICT.—*New London County.*—Last Tuesday in May; 3d Tuesday in October.

New Haven County.—1st Tuesday in June; 1st Tuesday in December.

Fairfield County.—3d Tuesday in March; 4th Tuesday in October.

Superior Court.

Judges:

EDWARD I. SANFORD, New Haven. CHAS. B. ANDREWS, Litchfield.
SIDNEY B. BEARDSLEY, Bridgeport. DAVID TORRANCE, Birmingham.
HENRY STODDARD, New Haven.

Clerks of Supreme and Superior Courts.

New Haven County.—JONATHAN INGERSOLL, New Haven; EDWARD A. ANKETELL, New Haven; EDWARD F. COLE, Waterbury.

Hartford County.—CHARLES W. JOHNSON, Hartford; FRANCIS CHAMBERS, Hartford.

New London County.—JOHN C. AVERILL, Norwich; JOHN C. KELLOGG, Norwich.

Fairfield County.—SAMUEL B. SUMNER, Bridgeport; WILLIAM R. SHELTON, Bridgeport; DAVID B. BOOTH, Danbury.

Litchfield County.—WILLIAM L. RANSOM, Litchfield; DWIGHT C. KILBOURN, Litchfield.

Middlesex County.—CHARLES G. R. VINAL, Middletown; FREDERICK VINAL, Middletown.

Windham County.—SAMUEL H. SEWARD, Putnam; HUBER CLARK, Willimantic; EDGAR M. WARNER, Central Village.

Tolland County.—ERWIN O. DIMOCK, Tolland; GELON W. WEST, Rockville.

State Attorneys.

TILTON E. DOOLITTLE, New Haven. JAMES HUNTINGTON, Woodbury.
GEORGE E. TERRY, Waterbury. WM. T. ELMER, Middletown.
WILLIAM HAMERSLEY, Hartford. JOHN J. PENROSE, Central Village.
JOHN M. THAYER, Norwich. BENEZET H. BILL, Rockville.
SAMUEL FESSENDEN, Stamford.

Sheriffs.

(Term expires June 1st, 1887.)

ROBERT O. GATES, Derby.
JOHN I. HUTCHINSON, Essex.
CHRISTIAN SWARTZ, Norwalk.
CHARLES H. OSGOOD, Putnam.
ALNA W. SPAULDING, Hartford.
FRANK HAWKINS, Griswold.
HENRY J. ALLEN, Torrington.
ORRIN C. WEST, Vernon.

(After June 1st, 1887.)

ROBERT O. GATES, Derby.
ALVA W. SPAULDING, Hartford.
CHARLES B. POMEROY, Windham.
FRANK HAWKINS, Griswold.
JOHN I. HUTCHINSON, Essex.
JOHN J. BUELL, Hebron.
R. T. CLARKSON, Stratford.
HENRY J. ALLEN, Torrington.

Allottment of Judges for the Year 1886-87.

NEW HAVEN COUNTY.

January Session.—TORRANCE, J.—1st Tuesday in January.

Short Calendar.—TORRANCE, J.—February 14, and February 21. STODDARD, J.—February 25, and assignment of cases for trial.

March Session.—STODDARD, J.—1st Tuesday in March.

Criminal Terms.—ANDREWS, J.—1st Tuesday in January. SANFORD, J.—1st Tuesday in April.

Waterbury Civil Term and Session: Short Calendar. — ANDREWS, J.—April 25, April 29, and assignment of cases for trial, at Waterbury.

May Session.—ANDREWS, J.—1st Tuesday in May, at Waterbury.

Waterbury Criminal Term. —PARDEE, J. —4th Tuesday in April, at Waterbury.

Motion Day. Friday. Time for making Assignments, Friday at 10 A. M.

HARTFORD COUNTY.

Short Calendar.—CARPENTER, J.—February 28 and March 7. PHELPS, J.—March 11, and assignment of cases for trial.

March Session.—PHELPS, J.—3d Tuesday in March.

Criminal Terms.—TORRANCE, J.—1st Tuesday in March. ANDREWS, J.—1st Tuesday in June.

NEW LONDON COUNTY.

Short Calendar.—STODDARD, J.—January 31, at New London; February 4, at New London, and assignment of cases for trial.

February Session.—ANDREWS, J.—2d Tuesday in February, at New London.

Short Calendar.—PARK, Ch. J.—April 25, and May 2, at Norwich. PARK, Ch. J.—May 6, at Norwich, and assignment of cases for trial.

May Session.—TORRANCE, J.—2d Tuesday in May, at Norwich.

Criminal Terms.—BEARDSLEY, J.—1st Tuesday in January, at Norwich. TORRANCE, J.—1st Tuesday in May, at Norwich.

FAIRFIELD COUNTY.

Short Calendar.—BEARDSLEY, J.—January 24, and January 31, at Bridgeport. BEARDSLEY, J.—February 4, at Bridgeport, and assignment of cases for trial.

February Session.—BEARDSLEY, J.—2d Tuesday in February, at Bridgeport.

Short Calendar.—SANFORD, J. —March 28 and April 4, at Bridgeport. BEARDSLEY, J.—April 8, at Danbury, and assignment of cases for trial.

April Session.—BEARDSLEY, J.—2d Tuesday in April, at Danbury.

Criminal Terms.—SANFORD, J.—3d Tuesday in February, at Bridgeport. SANFORD, J.—2d Tuesday in May, at Danbury.

Windham County.

Short Calendar.—Sanford, J.—April 25, at Windham. Sanford, J.—April 29, at Windham, and assignment of cases for trial.

May Term.—Beardsley, J.—1st Tuesday in May, at Brooklyn.

Short Calendar.—Sanford, J.—May 31, at Windham. Sanford, J.—June 3, at Windham, and assignment of cases for trial.

June Session.—Beardsley, J.—1st Tuesday in June, at Windham.

Litchfield County.

Short Calendar.—Andrews, J.—May 31, June 3, and assignment of cases for trial.

June Session.—Sanford, J.—1st Tuesday in June.

Criminal Term.—Granger, J.—1st Tuesday in April.

Middlesex County.

Short Calendar.—Phelps, J. — January 24, at Middletown. Phelps, J.—January 28, at Middletown, and assignment of cases for trial.

February Session.—Phelps, J.—1st Tuesday in February, at Middletown.

Short Calendar.—Torrance, J.—April 11, at Middletown. Torrance, J.—April 15, at Middletown, and assignment of cases for trial.

April Session.—Torrance, J.—3d Tuesday in April, at Haddam.

Criminal Term.—Torrance, J.—1st Tuesday in April, at Middletown.

Tolland County.

Short Calendar.—Phelps, J.—January 4, January 7, and assignment of cases for trial.

January Session.—Phelps, J.—2d Tuesday in January.

Short Calendar.—Loomis, J.—May 16, May 20, and assignment of cases for trial.

May Session.—Stoddard, J.—4th Tuesday in May.

Criminal Term.—Stoddard, J.—1st Tuesday in June.

Return days first Tuesdays of each month, except July and August.

Courts of Common Pleas.

Judges.

New Haven County.—John P. Studley, New Haven.

Hartford County.—David S. Calhoun, Hartford.

New London County.—John G. Crump, New London.

Fairfield County.—Frederick B. Hall, Bridgeport.

Litchfield County.—Donald G. Warner, Salisbury.

Clerks of Courts of Common Pleas.

New Haven.—Herbert E. Benton, New Haven; Assistant, James Bishop, New Haven. *Hartford.*—Charles E. Fellows, Hartford. *Fairfield.*—W. R. Shelton, Bridgeport; Assistant, B. A. Hough, Danbury. *New London.*—Charles W. Butler, New London. *Litchfield.*—William F. Hurlbut, Winsted.

Sessions of Courts of Common Pleas.

New Haven County.—At New Haven, third Monday of September and first Monday of November, January, March and May.

Hartford County.—At Hartford, first Monday of September, November, January, March and May.

Fairfield County.—At Bridgeport, first Monday of September, October, November, January, March and May. At Danbury, first Monday of December, February, April and June.

New London County.—At New London, first Tuesday of April and August. At Norwich, first Tuesday of February and October.

Litchfield County.—At Litchfield, first Monday of May, fourth Monday of September. At Winchester, first Monday of January, April and September. At Canaan, first Monday of March, July and November. At New Milford, first Monday of February and August.

Return days, first and third Mondays of each month.

Appeal cases are returnable only on the first Mondays of each month, or opening days of each term.

District Court.

Judges.

Waterbury.—ALBERT P. BRADSTREET, Thomaston.
EDWARD F. COLE, Deputy Judge, Waterbury.

Clerk of District Court.

Waterbury.—DANIEL F. WEBSTER, Waterbury.

Sessions of District Court.

Waterbury.—First Monday of January until Friday preceding first Monday in July; first Monday of September till Friday preceding twenty-fifth day of December.

U. S. Circuit and District Courts in Connecticut.

Supreme Court, Circuit Justice.—SAMUEL BLATCHFORD, New York City.
Circuit Court Judge.—WILLIAM J. WALLACE, Syracuse, N. Y.
District Judge—NATHANIEL SHIPMAN, Hartford.
Clerk of the Circuit and District Courts.—EDWIN E. MARVIN, Hartford.

JUDICIARY.

District Attorney.—LEWIS E. STANTON, Hartford.
Marshal.—NATHAN D. BATES, Norwich.
Deputy-Marshals.—FRANK M. LOVEJOY, New Haven; MILES B. PRESTON, Hartford; RICHARD C. MORRIS, New London.

Sessions of United States Courts.

Circuit Court.

Fourth Tuesday of April, - - -	New Haven,
Third Tuesday of September, - - -	Hartford.

District Court.

Fourth Tuesday of February, - - -	New Haven.
Fourth Tuesday of May, - - -	Hartford.
Fourth Tuesday of August, - - -	New Haven.
Fourth Tuesday of December, - - -	Hartford.

Masters in Chancery.

Johnson T. Platt, New Haven; Henry E. Taintor, Hartford.

Commissioners of the United States Circuit Court.

Hartford: William Hammersly, H. E. Burton, Edwin E. Marvin, Ratcliffe Hicks, Charles E. Fellowes, Sylvester C. Dunham. Bridgeport: Morris W. Seymour. Litchfield: George M. Woodruff. Meriden: James P. Platt. Middletown: A. W. Bacon. New Haven: Samuel L. Bronson, Johnson T. Platt, Jonathan Ingersoll. New London: John P. C. Mather. Norwich: Allen Tenny. Norwalk: A. B. Woodward. Thompson: Abel Converse. Waterbury: George E. Terry. Willimantic: John M. Hall.

Registers in Bankruptcy.

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$ 5 or less....Fee, 5 cents.	$30 to 40.....Fee, 20 cents.	$60 to 70.....Fee, 35 cents.
5 to 10..... " 8 "	40 to 50..... " 25 "	70 to 80..... " 40 "
10 to 15..... " 10 "	50 to 60..... " 30 "	80 to 100 ... " 45 "
15 to 30..... " 15 "		

Postal Notes.—Postal notes for any sum less than $5 can be obtained at any money order office payable to the bearer at the money order office on which it is drawn. They must be presented for payment within three months from the last day of the month in which they were issued. The fee charged is 3 cents.

Immediate Delivery.

Fee, (special stamp) 10 cents. In force at all offices for both letters and packages.

Foreign Postage.

The rates of postage to the following countries (which with the United States and Canada, compose the "*Universal Postal Union*,") are as follows:

On *Letters* 5 cents for each ½ oz. or fraction thereof—pre-payment optional.

On *Newspapers* and on *other Printed Matter*, and on *Samples of Merchandise*, 1 cent for each 2 oz. or fraction thereof.

Argentine Republic, Austria-Hungary, Bahamas, Barbadoes, Belgium, Bermudas, Brazil, British Colonies, West Coast of Africa and West Indies, British Guiana, British Honduras, British India, Bulgaria, Ceylon, Chili, Denmark, Dominica, Dutch Colonies, Ecuador, Egypt, Falkland Islands. France (and Algeria), French Colonies. Germany, Great Britain and Ireland, Greece, Greenland, Guatemala, Hayti, Holland, Honduras, Hong Kong, Italy, Jamaica, Japan, Labuan, Liberia, Mauritius, Mexico, Montenegro, Newfoundland, Nicaragua, Norway, Paraguay, Persia, Peru, Portugal and Colonies, Roumania, Russia, Salvador, Sandwich Islands, Servia, Spain and Colonies, Straits Settlements, Sweden, Switzerland, Trinidad, Turkey, Uruguay, U. S. of Columbia, Venezuela.

To Canada (including Nova Scotia, New Brunswick, Manitoba and Prince Edwards Island), *Letters*, 2 cents for each 1 oz. or fraction thereof; Transient Newspapers and other printed matter, 1 cent for each 4 oz. or fraction thereof. *Samples of Merchandise* (no dutiable articles or articles of intrinsic value admitted), 10 cents for each package, which must not exceed 8 oz. in weight—prepayment compulsory.

Foreign Money Orders.

Belgium, Switzerland, Tasmania, Jamaica, New South Wales, Victoria, New Zealand, Portugal, Great Britain, Germany, Canada, Italy, France and Algeria.

$10 or less.....Fees, 10 cents.	$30 to 40.....Fees, 40 cents.
10 to $20..... " 20 "	40 to 50..... ... " 50 "
20 to 30..... " 30 "	

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